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# THE LIFE
OF
# RICHARD OWEN

VOL. I.

Richard Owen.

# THE LIFE

OF

# RICHARD OWEN

BY HIS GRANDSON

THE REV. RICHARD OWEN, M.A.

WITH THE SCIENTIFIC PORTIONS REVISED
BY C. DAVIES SHERBORN

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ALSO AN ESSAY ON OWEN'S POSITION IN ANATOMICAL SCIENCE
BY THE
RIGHT HON. T. H. HUXLEY, F.R.S.

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PORTRAITS AND ILLUSTRATIONS

*IN TWO VOLUMES—VOL. I.*

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LONDON
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1894

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TO

HER MAJESTY THE QUEEN

# PREFACE

SIR RICHARD OWEN'S careful habit of preserving every paper or letter that came to his hands has rendered the task of preparing his 'Life' more difficult perhaps than it would otherwise have been. Of his own letters, written chiefly to his wife and sisters, no less than 1,200 remain; while of the voluminous correspondence he received during his long life more than 15,000 letters had been preserved.

Besides all these, both he and his wife were in the habit of keeping diaries. His own journal is of a more or less disconnected character; while that of his wife, which includes the years 1834 to 1873, is a full record not only of the important facts but also of the trivial details of their joint lives. It will, therefore, be readily understood

that my chief difficulty has been to compress the biography within reasonable limits.

His general character stands out clearly, I venture to think, from the material which has been utilised; and, although from our relative ages it is impossible that I could have a personal knowledge of his private life until his later years, I can but repeat the unfailing testimony of his friends in regard to his charm of manner, his genial courtesy, and his kindness of heart. All this and a great deal more I have seen for myself.

I gladly take this opportunity of expressing my sincere gratitude to the Right Hon. T. H. Huxley for the kind and generous contribution he has made to this book, showing Professor Owen's position in the history of anatomical science.

I have to thank Mr. C. Davies Sherborn for carefully examining Sir Richard's correspondence, for editing or revising the various scientific portions of the work, and for lending me much assistance throughout.

I wish also to express my best thanks to Mr. John Murray for many suggestions and revisions, and for the interest he has taken in the work.

It only remains for me to acknowledge my indebtedness to Lady White Cooper, Sir William Flower, Professor Jeffrey Bell, Dr. Pearson Langshaw, and others, for valuable information which has done much to enhance the interest of the biography, and to Dr. Henry Woodward and the Rev. H. N. Hutchinson for the illustrations of some extinct animals, the reconstruction of which occupied so large a part of Professor Owen's life.

RICHARD OWEN.

SHEEN LODGE, RICHMOND PARK:
*October* 1894.

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# PROFESSOR OWEN

## CHAPTER I

1804–24

Parentage—Childhood—Youth

RICHARD OWEN, younger son of Richard Owen, formerly of Fulmer Place, Bucks, was born at Lancaster on July 20, 1804. His grandfather, William Owen, married Elizabeth, daughter of Richard Eskrigge. This Richard Eskrigge was High Sheriff of Bucks in 1741, and was the owner of Fulmer Place. In an old Family Prayer Book, dated 1713, with a frontispiece portrait of Queen Anne, and further 'adorn'd,' as the title-page has it, 'with 50 historical cuts,' there are the following entries in Richard Eskrigge's handwriting:—

'Richard Owen, son of William Owen (who was free of the Fishmongers' Company) and of Elizabeth Owen. The said Richard was born in the parish of St. Matthew, Friday Street, December 5, 1754, and baptized the Sunday following. The sponsors were Richard and Elizabeth

Eskrigge and Mr. Beresford (Cashier in the Bank of England).

'Elizabeth Owen died December 5, 1754.

'Elizabeth, wife of Richard Eskrigge, died July 16, 1756. They were both buried in Wanstead parish, in Essex, in the vault of Elizabeth Froysell, my wife's mother. Ann Froysell and Ann Eskrigge, her niece, are buried in the same place.'

Then in Sir Richard Owen's handwriting a few explanatory remarks are added. 'The above entries,' he writes, 'are in the handwriting of my great-grandfather, Richard Eskrigge, of Fulmer Place, Fulmer, Bucks, and relate to the birth of his grandson and heir, my father, Richard Owen. My father's mother died soon after his birth, and he was brought up by his grandfather Eskrigge, and his education was directed by the executors or trustees after Richard Eskrigge's demise.'

The following table makes the relationship clearer:—

ROBERT ESKRIGGE OF ESKRIGGE

Richard Eskrigge (of Fulmer Place), High Sheriff of Bucks, 1741 = Elizabeth Froysell

Elizabeth Eskrigge (died the year after her marriage) = William Owen

Richard Owen inherited Fulmer Place = Catherine Longworth (*née* Parrin)

Sir Richard Owen, K.C.B.

There is also an entry in the handwriting of Sir Richard Owen's father. 'Richard and Catherine Owen were married at Preston, November 8, 1792, by the Rev. H. Shuttleworth.'

The Professor's mother was of French extraction. She was of a Huguenot family of the name of Parrin, who came over from Provence at the Revocation of the Edict of Nantes. Besides being a woman of great refinement and intelligence she was an accomplished musician, for her father had supported himself by the profession of music, and she inherited his talent. In appearance she was a handsome, Spanish-looking woman, with dark eyes and hair. Owen himself was never tired of speaking of his mother's charm of manner, and of all that he owed to her early training and example. His father was a complete contrast. Tall, stout, and ruddy, his general appearance bore a strong resemblance to the face and figure popularly supposed to belong to the typical John Bull. Nor was his character unlike—bluff, burly, obstinate, and perhaps not particularly brilliant, he was yet possessed of sound common-sense.

Honest and sincere himself, Richard Owen the elder expected all with whom he had dealings to be the same, and never quite recovered from the effects of a certain business transaction which took place between Napoleon I. and himself.' He had already made a considerable fortune

as a West India merchant, and at the beginning of the present century contracted for the supplies of the French troops at St. Dominique, but Napoleon I. afterwards repudiated all English debts. Talleyrand, however, represented to him that Mr. Owen's contract had been most faithfully carried out, and that he was deserving of some return at least. Napoleon thereupon gave orders that the estates which he had confiscated from the Bishop of Deux-Ponts should be offered to Mr. Owen as payment.

Before giving an answer Mr. Owen consulted his wife. She was strongly of opinion that, as the title to the estates was so insecure, the best thing to be done was to accept them, and then sell them for anything they would fetch. The place was accordingly sold, and without much difficulty, for the position was a beautiful one and the land productive. It so happens that the title to these lands has never been disputed, and the descendants of the original purchaser occupy them to this day.

A letter from St. Bartholomew, dated July 30, 1807, to 'Kitty,' from her husband, contains the following statement :—

'Yesterday I received a letter from Mr. Warswick, dated June 3, advising me that they had received 1,684*l.* 9*s.* 2*d.* for the lands in France taken for the French bills. This is a heavy loss, but I am glad on your account that there is that sum in

the bank, as you may now call there for what you want with more confidence.'

The loss which this transaction entailed on Richard Owen evidently preyed upon his mind. Two years afterwards he died.

In 1808, a year before his death, he wrote again to his wife from St. Kitt's. In this letter he refers to his losses, but, what is more important, he adds: 'I am glad to know James[1] and Richard come on so well with their studies and are so attentive.' In October 1809 Richard Owen died at the age of fifty-four, according to an entry in a little old note-book, tied up with a faded pink ribbon, and headed 'Kitty Parrin's Memorandum-book.'

The next entry in this little note-book is that of the death of Mrs. Owen's eldest son :—

'*April* 22, 1827.—My eldest boy, James Hawkins Owen, died at Demerara of yellow fever, and was buried there.'

Long before that date Mrs. Owen was living with her six children in a house in Thurnham Street, at the corner of Dalton Square, Lancaster, and this old house is still in existence. After some preparatory instruction from an old Quaker lady, Richard Owen, at the mature age of six, was sent to the Lancaster Grammar School to join his elder brother, James, by the advice of his godfather, the Rev. Joseph Rowley,

[1] Professor Owen's elder brother.

who was curate of the parish as well as head-master of the school. There is nothing to be seen of the old school now, except perhaps the dated stone which used to be over the porchway.

THE HOUSE IN THURNHAM STREET, LANCASTER, WHERE OWEN WAS BORN

The New Grammar School was built in a different part of the town. Whewell, the famous Master of Trinity, who was Owen's fellow-townsman, also received his education there, and another schoolfellow, who was in the same class

as Owen's elder brother, was Higgin, late Bishop of Derry.

Richard Owen always spoke affectionately of Mr. Rowley, or Parson Rowley as he was called, and was also on good terms with two of the other masters of the school, the Revs. E. Morland and J. Beetham. How he got on with his other tutors is not so certain. One of them stigmatised him as 'lazy and impudent,' and prophesied that he would come to a bad end. This gentleman gave instruction in caligraphy, but in spite of his dismal predictions he managed to teach Owen to write a remarkably clear and neat hand, which hardly varied till within a few years of his death.

Between twelve and two o'clock the boys left school for dinner. It so happened that the gardens belonging to Mrs. Owen and to Mr. Rowley adjoined each other, and on one occasion the carpenter, Whewell's father, was engaged in repairing the division fence. Mr. Rowley was walking in his garden before school began again, and there met young Whewell, who was assisting his father in his work. In the course of conversation Mr. Rowley, who had evidently been putting a few professional questions to the boy, was struck with the real intelligence of his answers, and the evident knowledge of mathematics which he displayed. He told Whewell's father that he thought his son ought to be sent

to the Grammar School. The elder Whewell, who was a man of much good sense, objected to the expense of such a proceeding, and the loss of his son's assistance. But Mr. Rowley, being of an exceedingly practical as well as generous nature, offered to bear the expense of books and fees himself. Young Whewell therefore joined the school. Considerably Owen's senior, he had been at the school some little time when the latter entered.

At that time Owen did not apparently exhibit any marked fondness for study. He would speak feelingly of a day ~~which~~ recurred at regular intervals, known as 'Black Monday,' when the misdemeanours of the week, which were allowed to accumulate until they reached a hideous climax, were expiated by the infliction of the extreme penalty of the law. It was remarked that the pains and penalties had somehow or other increased since Whewell's advent to the school, and it was acutely surmised that his precocious relish for mathematics and study in general had considerably raised the standard of work. This was felt to be too much. Whewell was a big strong fellow, but Owen, deeming that there was safety in numbers and a big brother, was loud in his taunting expressions of disgust. Whewell thought it high time to administer a reproof to one so much his junior both in school standing and age, and upon the big brother, James Owen,

thinking fit to interfere, Whewell proceeded to administer to him a couple of black eyes. A remark of Owen's mother is preserved, to the effect that she thought it most ungrateful of 'that boy Whewell' to have 'blacked her eldest son's eyes so shockingly.' But the younger Owen and Whewell became the best of friends, and their friendly intercourse existed without a break until Whewell's death in 1866.

Richard Owen remained at the school long enough to be one of the first six boys. Among the privileges at that time attached to those favoured seniors was a curious institution known as the 'wedding money.' Whenever a wedding took place at the Parish Church, these six boys, if they were in attendance, could claim a fee. It seems that in pre-Reformation times the six seniors were called upon to fill some minor office in the Church—that probably of acolytes—during the wedding ceremony, and, although the duties had lapsed, the fees continued. This fee apparently varied—sometimes it would only be a shilling or half a crown between them, but it occasionally rose in the case of county families to the substantial sum of a couple of guineas. On one occasion a farmer was about to be married, but, as he was anxious to have something for his money, he refused to part with a single penny until one of the young 'gents' would 'gie him a homily.' The boys were somewhat dumbfounded,

and were beginning to think they had better let the question of fees pass and go off empty handed, when Owen, displaying a considerable share of ready assurance, stepped forward and coolly began from the Latin Grammar, 'Propria quae maribus tribuuntur mascula dicas,' &c. That was quite enough. The farmer handed over his fee with great satisfaction, and Owen achieved a cheap reputation amongst those who were present as *the* classical scholar of the school.

'At this period of his life,' so his last surviving sister would relate, 'Richard was very small and slight and exceedingly mischievous, and he hardly grew at all till he was sixteen.' His family were evidently apprehensive—like Mrs. Wilfer's mamma—that it would end by his being a 'small man.' But he soon began to make up for his early want of stature, and when he left the Grammar School he was already a big awkward lad.

At the age of fourteen Richard Owen had given no signs of a taste for the work to which his life was afterwards devoted. Part of a manuscript treatise on Heraldry still exists, which he wrote about this time, as well as an elaborately painted coat of arms of the Owen and Eskrigge family, with 'R.O. del., 1818,' in the corner. He thus alludes to this work of art: 'My earliest hobby was Heraldry, and a friend of my mother's, by name Miss Taylor, who was sister of the then

Garter King of Arms, promised me a place in Heralds' College.' In a footnote he added many years after: 'Which luckily I did not get, Garter dying before I was of age for such office.'

Soon after leaving school he was apprenticed to 'Leonard Dickson, of Lancaster, Surgeon and Apothecary,' as his indenture, dated August 11, 1820, shows. According to the terms of this document he was to be provided by his mother with 'meat, drink, washing and lodging, and also decent and suitable cloathes and wearing apparel,' and his master was on his part to teach him the 'arts, businesses, professions, and mysteries of a surgeon apothecary and man midwife, with every circumstance relating thereto.'

Mr. Dickson died two years after, and Richard Owen was 'assigned, transferred, and turned over' by the executors to Joseph Seed for the term of five years, the indenture of this transfer bearing the date of June 19, 1822. The following year Mr. Seed accepted a post as Surgeon in the Royal Navy,[2] and Owen was again transferred, by an indenture dated Decem-

[2] It is probably from this circumstance that the idea of Owen's entering the Navy originated. The story has been extensively quoted and elaborated into an anecdote in which Abernethy says to Owen, 'Going to sea, sir? You might just as well go to the devil.' The Professor once assured the writer that this story, though ingenious, had no foundation in fact.

ber 13, 1823, to James Stockdale Harrison, 'Surgeon and Apothecary.'

There is appended to the indenture to Seed a certificate in Joseph Seed's handwriting which reads as follows:

'Mr. Richard Owen became my pupil in consequence of the death of Mr. Dixon [*sic*], the gentleman to whom he was an apprentice. From the circumstance of myself being called upon by the Service to which I belong, I had him transferred to my respected friend Mr. J. Harrison, of this town.

'Mr. Owen's general conduct during the time he was with me has my highest commendation, and at all times I shall be happy to bear testimony to his most deserving merit, as well as to his respectability.

'J. SEED,
'Surgeon Royal Navy.'

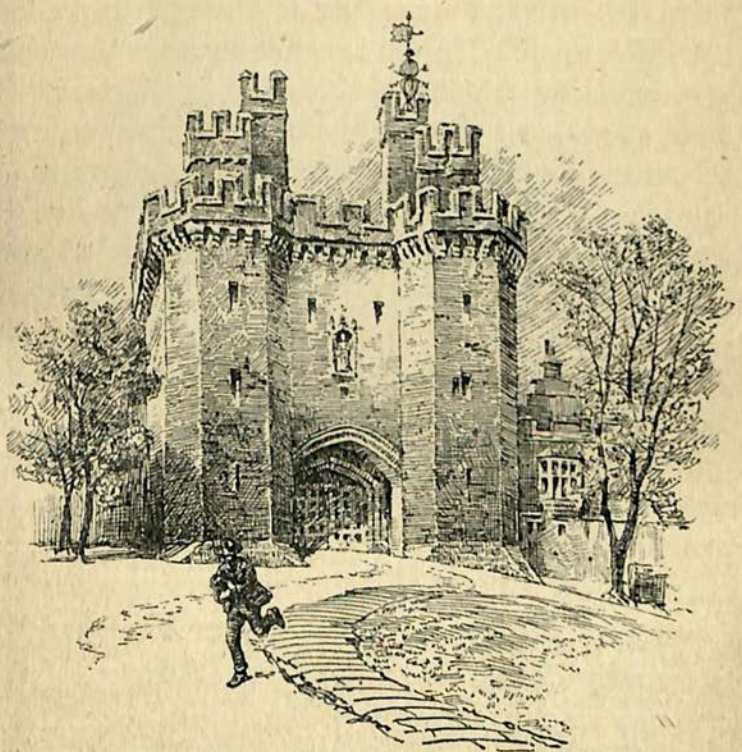
Lancaster, January 10, 1827.

During Richard Owen's apprenticeship at Lancaster, two adventures befell him which he often related. They are given in his own words;[3] but they necessarily suffer by the change from spoken to written language. They lose his own indescribable manner of telling a good story, especially when relating his own experiences,

[3] The substance of these two ghost stories was contributed by the Professor himself to *Hood's Magazine*, vol. ii., 1844, p. 442, and vol. iii., 1845, p. 294.

which only those who may have heard him will be able to recall in reading the two following accounts of himself:—

'It happened during the probationary period



THE GATEWAY, LANCASTER CASTLE

of my apprenticeship[4]—we preferred to call ourselves "pupils," by the way—to the worthy country surgeon. He stood high in the estimation of the good townsfolk, and was, moreover, surgeon to the County Gaol. This imposing pile included all

[4] His first, under Mr. Dickson.

kinds of architecture, from the square Roman tower and baronial portcullised gateway and keep of the early Plantagenets, to the fortress built in the time of Elizabeth, and to those more modern imitations erected according to the exigencies of a model prison. The old square tower, with walls of exceeding thickness—Hadrian's Tower it was called—was divided by four or five storeys into as many spacious but low-roofed apartments, which were accessible by a spiral stone staircase lodged in a corner turret; the top room of all, being the highest and most airy, was used as the hospital for the gaol. Here indeed we exercised privileges, which the less favoured surgeon's pupils of the town could only hope to enjoy in their metropolitan career at the hospitals. The inquests held over all the unfortunates who by natural death are liberated from prison gave us the opportunities of becoming early initiated in practical anatomy. I eagerly embraced this opportunity of initiation, to which I looked forward not without feelings of awe, such as might well mingle with the scientific aspirations of a youth of sixteen but three weeks emancipated from the old-fashioned school, where supernaturalism had always flourished. In my school days no youthful sceptic had ever ventured a doubt as to the raising of the devil by the process of muttering the Lord's Prayer backwards. The influence of a score of school myths of a

ghostly character, and the natural awe which the human corpse inspires, especially in the youthful mind, damped considerably, I must confess, my ardour for the acquisition of a knowledge of internal structure, when, the sheet having been withdrawn from the pale, cold, collapsed features of the deceased, the half-opened eyes seemed to deprecate what then struck me forcibly as being a desecration of the sanctity of the dead. It was in vain that my elder fellow-pupil drew my attention to the various pathological signs in the thoracic viscera on which our master learnedly descanted; my gaze would still turn to the pale cold features, and the glassy staring eyeballs. He had been a young man, imprisoned for a term, and carried off by a rapid consumption. His was the first case that I had attended, and I had taken medicine to him in the hospital. Another prisoner, somewhat older, had died the day after, and his body was examined the same day. These *post-mortem* dissections were performed in the middle room of the old tower, where the prison clothes were also washed. I must say I quitted the scene with both appetite and ardour for science somewhat damped.

'A few fever cases had broken out in the gaol, and I was charged to visit one that had reached a critical height late in the evening, with medicines to be administered if certain symptoms were present. On this errand I set out about nine o'clock.

It was late in November, and a storm was rising, obscuring the light of a full moon, which now and then burst from between the clouds. I entered the gloomy arch of the old gateway tower, let fall the ponderous knocker, and, having been reconnoitred through a small grating, was admitted. The old turnkey, being apprised of my business, offered to accompany the "young doctor"—in which title I already rejoiced—to the hospital tower. But as my seniors were accustomed to dispense with this attendance I thought it *infra dig.* to require it; he might actually think *I was afraid* of going to the top of the old tower alone; so, having obtained the keys and a lantern, I proceeded to the tower without him.

'The storm seemed to be increasing in violence, and the clouds were scurrying along in black masses as I crossed the spacious courtyard. The door of the turret I had to ascend was in a distant and gloomy corner of the yard. I set down the lamp, to turn with both hands the heavy key in the stiff and creaking lock. When at length the door yielded to a push, I was met by such a gust as if all the winds of heaven were escaping from temporary confinement in that old tower. I stood for a moment with my back against the open door. The strange combination of howls, screams, and whistlings that smote my ear at the same time startled me, at first, with the idea that some human voices in the staircase were mingling with the

sounds produced by the rushing of the wind. The lantern had swung open with the effort of my push and the light was extinguished. As the sounds died away I recognised that most melancholy and strangely articulate howling to which I had often in the daytime listened in the circular turret, which received, like a colossal organ-pipe, the currents of air that vibrated as they rushed in through four or five arrow-slits in its thick walls. The effect that a storm produced, blowing strongly from the sea, which was not very far distant, as it beat upon the walls of the old tower and played through this gigantic Æolian apparatus, is quite inconceivable.

'When I had somewhat collected my thoughts, my first idea was to return to the gateway for a light; but reflection whispered "No; they'll think you were afraid to pass the corpse room in the dark; besides, they might say you couldn't miss your way up the narrow spiral staircase." So, shutting the heavy gate again, and locking it—the rule of the gaol being to lock every door that you passed through—I proceeded to mount the long succession of stone stairs. The loneliness of my position then struck coldly upon me, especially when the winds, after a moment's silence, began again their dismal concert of moans, screams, and howls, through those arrow-slit apertures by which air and light were admitted to the stair-turret. In the murkiest gloom I began my ascent, and, arriving at the first grating, groped

out the keyhole, unlocked the iron door and passed through. This door I did not lock after me, but left wide open. I tried to whistle as I proceeded; but it seemed a mockery to attempt to make any sound heard amid the indescribable crescendos and diminuendos which filled that dismal access to the abodes of sickness and death. And as I slowly proceeded my mind became suddenly and at once occupied—filled to the exclusion of every other idea—with the scene I had witnessed for the first time that morning. It came upon me so suddenly and distinctly that I involuntarily stopped: the picture of the whole procedure, with those features that had most appalled me, rose in hard outline before my mind's eye, and I tried again to reason and shake it off. "Men must be dissected," I said to myself; but I wished I had never witnessed those pallid collapsed features. I then believed in ghosts, and three or four of the best authenticated cases vividly recurred to me, and, as these thoughts passed through my mind, every step I took was rapidly bringing me nearer the entry of that cold and dreary chamber, where—but I wasn't going to think of that any more. I had unlocked the second iron grating, which crossed the staircase, and, having passed the dreaded chamber, was hastening on, when a slight gleam of light from above made me raise my head, and I saw at the next turn

above me a figure, at first indistinct, then in clear outline, tall and thin, leaning against or clasping the central stone pillar of the staircase. My first alarm grew into a creeping and freezing horror, as, staring intently upwards, I thought I distinguished the pale collapsed features, and those half-opened glassy eyes that had haunted me through the day, and now looked coldly down and met my own. I would have called for help, but I knew that would be in vain; and I began a precipitate descent, but had hardly made one turn down and passed the closed door of the dead-chamber, when a second figure in white appeared below me, as if to intercept my passage; that figure, too, appeared to lean against or clasp the central column, and surely it bore the features of the other corpse! For an instant I grasped the pillar for support, and gazed upon the spectre in speechless terror (I was but young). I had gone by the very spot but a few moments before, and no human being could possibly have stood and been passed unconsciously by me, where now the apparition, thin, pale, and motionless, glared so clear and bright. An unusually articulate howl above, and a clattering like some one in chains rapidly rushing down the staircase below me, made me start off in desperation. As I passed the lower ghost, feeling more dead than alive, I felt something move—and found I had dragged a sheet after me! This evidence of materiality

recalled my scattered senses in some degree. I raised the sheet, and returning a few steps saw the moon that had broken out gleaming brightly through one of the arrow-slit windows upon the central stone pillar. Here I found that advantage had been taken of the current of air admitted by the arrow-slit to hang up a sheet to dry on the opposite pillar. I could also see where a nail, driven into a crevice of the stone-work, had been apparently used to suspend the sheet. I hung the sheet up again and soon saw how the upper round opening of the arrow-slit, pictured in bright moonlight upon the sheet, had made the head of the apparition; some folds of the sheet and an excited imagination completed the ghastly physiognomy. Every trace of the supernatural had vanished. I was excited even to laughter (my merriment was somewhat hysterical, I must admit), and I then deliberately reascended to take a second and cool scrutiny of ghost number one. It was of course due to the moonlight through the other window. It really wanted but little imagination to complete the picture. Everything had concurred to prepare my mind to receive the supernatural interpretation of it. All the same, I was not sorry to emerge into the open air of the courtyard. The old turnkey, when I presented myself at the inner gate of the entrance tower, could not help asking, as he scrutinised my pale face by the light of his lamp, "what

ailed me." I made him an indifferent answer, returned him the keys and lantern, and passed out. I remember having mentally vowed all my way home never, never again to desecrate the Christian corpse, and to quit a profession that could only be learnt by such practices.'

How long Richard Owen kept this resolution we can easily see. It was only a few months after that the incident occurred known as the 'Negro's head story,' which the Professor used to tell so well. As imperfectly recollected accounts of this story during his lifetime appeared occasionally in various papers, it may not be out of place to give it in his own words :—

'My worthy preceptor was called out one evening to the case of a sailor who was brought home in an apoplectic fit after receiving a heavy fall in a drunken fray at a public-house. The doctor found it a hopeless case, and the man passed from his stupor into death. After his death his widow and daughter retired to one of the little houses which face the steepest part of the hill leading to the Castle gates. One evening they were talking about the slave trade, in which occupation it appeared that the unfortunate husband and father had spent a large part of his active life. The two women had finished their meal and were sitting before the fire, by the light of which they were holding their conversation. The mother was feebly attempting to make a case in

defence of the traffic, when, on a sudden, the attention of both was roused by a sound as of footsteps rapidly approaching the door, which was immediately burst open by a heavy blow. A piercing shriek came from the mother, who rushed into the adjoining bedroom; the daughter started, and turned towards the cause of the noise and her mother's fright, and saw what she afterwards described as the phantom of a negro slave lying on the floor, which turned its ghastly head and glared for a moment upon her with white protruding eyeballs. A figure in black entered as she fled screaming after her mother. When the two terrified women ventured at length to glance into the room from which they had been scared, all was quiet; the red glow from the grate showed everything to be as they left it. What could this be except an apparition of the captain with his negro slave, and the old gentleman himself in black pursuing them?

'The mystery of that phantom head,' the Professor would conclude in tragic tones, 'is known to me alone. The goodly resolves I had made some time previously, after my visit to the tower staircase, to intrude no more into the portals of anatomical science, had vanished: the determination to cut my chosen profession, once and for all, had wavered. Rallied by my fellow-pupils, and excited by some articles in a cyclopædia to which we had access, my anatomical passion soon

returned, and all other resolves and scruples were forgotten.

'My zeal and skill at assisting at *post-mortems* had gained me the rarely bestowed commendation of the doctor our preceptor. I had already begun to form a small anatomical collection, and had lately added a human cranium to my series of the skulls of dogs and cats and the skeletons of mice and "such small deer." It happened also that on the day when a negro patient in the gaol hospital had died, a treatise on the "Varieties of the Human Race" fell into my hands, and greatly increased my craniological longings. The examination of the body was over and the hurried inquest performed, when, slipping some silver into the hand of the old turnkey as we left the room, I told him I should have to call again that evening to look a little further into the matter, before the coffin was finally screwed down. It was but six weeks from the time of my first adventure in the old tower, when, provided with a strong brown-paper bag, I sallied forth on a fine frosty evening in January to secure my specimen of the Ethiopian race. I was now an *habitué* of the place, and an attendant was no longer proffered to accompany me. Taking my lantern and keys, I opened every door and gate, duly locking them again after I had passed through. As I ascended the spiral stairs of Hadrian's Tower, speculations on "facial

angles," "prognathic jaws," and that "peculiar whiteness of the osseous tissue" upon which my favourite author had dilated, drove out of my head all the former broodings on immaterial beings which had so disturbed my first ascent of the tower. I particularly remember fastening after me the heavy door which led into the dark wide stone chamber of the dead, in order to be secure from any interruption in my work. The gloom of the apartment was just made visible by the light of the lantern, but it served for the business immediately in hand. The various instruments had judiciously been left behind; and when I returned through the gates—the bag under my cloak—the intimation that all was now ready for interment was received with a nod of intelligence by the old turnkey, which assured me that no inquisition nor discovery was to be apprehended on that side of the castle walls.

'As soon as I was outside I began to hurry down the hill; but the pavement was coated with a thin sheet of ice, my foot slipped, and, being encumbered with my cloak, I lost my balance and fell forward with a shock which jerked the negro's head out of the bag, and sent it bounding down the slippery surface of the steep descent. As soon as I recovered my legs I raced desperately after it, but was too late to arrest its progress. I saw it bounce against the door of a cottage facing the descent, which flew open and received me at

the same time, as I was unable to stop my downward career. I heard shrieks, and saw the whisk of the garment of a female, who had rushed through an inner door; the room was empty; the ghastly head at my feet. I seized it and retreated, wrapping it in my cloak. I suppose I must have closed the door after me, but I never stopped till I reached the surgery.'

# CHAPTER II

1824-33

Edinburgh University—Prosector to Abernethy in London—M.R.C.S. and Assistant Curator of the Hunterian Collection at the College of Surgeons, 1826—Lecturer on Comparative Anatomy at St. Bartholomew's, 1828—Catalogue of the Hunterian Museum, 1830-34—Introduction to Cuvier—Visit to Paris, 1831—'Memoir on the Pearly Nautilus, 1832.'

THE terms of Owen's surgical apprenticeship at Lancaster were never carried out to the full. In October 1824 he matriculated at Edinburgh University. Some of his lecture cards of admission are still preserved. We gather from them that he attended Hope's lectures on Chemistry and Pharmacy, James Home's on the Practice of Medicine, John Mackintosh's on Midwifery, Andrew Duncan's on Materia Medica, besides the lectures given by Robert Jameson and W. P. Alison. He also attended the anatomical lectures of Monro (tertius), but as that worthy gentleman was in the habit of lecturing—so Owen has remarked—from the notes used by his grandfather and his father, both of whom had successively occupied the chair of Anatomy before him, these lectures were found to be neither of particular

interest nor yet sufficiently up to date. So Owen was constrained to attend the outside course given by Dr. Barclay on Practical Anatomy and Anatomy and Surgery. Though this was an extra which he could ill afford, still he never regretted it, for of all his teachers at Edinburgh it was to John Barclay that he owed the most. Many times has Owen spoken of the influence that John Barclay had on his early career, and the sincere affection with which he inspired him. In the early part of Owen's residence in Edinburgh, he and Gavin Milroy founded a students' society, which was called, at Owen's suggestion, 'The Hunterian Society.' Little did he think how closely connected he was afterwards to become with John Hunter's work. This society was apparently in existence for some twenty-five or thirty years afterwards, but is now extinct. The University Professors allowed the students the use of one of the college rooms for the meetings of the society.

Amongst Owen's reminiscences of his student days in Edinburgh was the ceremony connected with the bringing in of the New Year. On New Year's Eve, 1824–25, sallying forth from his lodgings in Nicholson Street, he was met by his friends opposite the Tron Kirk, where they assembled to see the New Year in, and to discuss the mysteries of a decoction known as 'Het Pint,' the groundwork of which is understood to be ale (boiled), with an admixture of whisky and

spice. This beverage was carried about in a bright kettle, and as the Church clock struck twelve the 'het pint' was handed round and drunk amid cheers.

While at Edinburgh, he received many letters from his mother. The first that is preserved is dated from Lancaster, March 4, 1825. In it she says she has had a call from a friend of his resident in Edinburgh, during a visit he was making to Lancaster.

'He gave me,' she writes, 'a most gratifying account of you, and your comfortable lodgings in Nicholson Street, and appears wishful to show you every attention in his power. . . . I hear that your thumb has again become inflamed, and am, my dear Richard, very uneasy about it. I therefore beg that you will take every precaution that is possible to guard against further danger, making a point of washing your hands as often as possible in the dissecting-room. All unite in best love, and that you may continue to enjoy health, and also the regard and approbation of the Professors, is the constant prayer of, dear Richard,

'Your ever affectionate mother,

'CATHERINE OWEN.

'P.S.—You will let us know when you want money.'

At the end of April 1825 John Barclay strongly advised Owen to move to St. Bartho-

lomew's Hospital, and study under Abernethy. After some consideration, Owen decided to do so, and obtained his college certificates forthwith, all of which are in existence. His yearly ticket (October 1824–October 1825) for the Library also exists, and a certificate from W. C. McDonald, the Apothecary to the Royal Infirmary, stating that 'Mr. Richard Owen had a Ticket for this Hospital, dated November the first, 1824, and signed the Porter's Book regularly during its currency.' A certificate from Dr. Mackintosh, dated April 30, 1825, states that 'Mr. Owen's conduct has been marked by the greatest zeal and attention.'

Dr. Barclay speaks of Owen in the following terms in his certificate: 'I had much reason to be satisfied with the mode of his attendance, and the manner in which he prosecuted these branches of his medical studies' (Anatomy and Surgery). April 25, 1825.

But Barclay's chief recommendation was a private letter to his friend Abernethy, which he gave to Owen to take to London with him.

This first journey to London Owen describes in the following terms:—

'I shall never forget the day when I arrived for the first time in London, where I had literally not one single friend: the only link I had with my Northern friends being John Barclay's letter of introduction to Dr. Abernethy, which I carried

in my pocket. The sense of desolation which I experienced in walking up Holborn towards St. Bartholomew's Hospital, where the letter was to be presented, was something indescribable, and the numbers of strange faces which kept passing by only increased that feeling.'

When he arrived at the hospital Abernethy had just finished lecturing, and was evidently in anything but the best of tempers, being surrounded by a small crowd of students waiting about to ask him questions. Owen was just screwing up his courage to attack this formidable personage and state his business, when Abernethy suddenly turned upon him and said, 'And what may *you* want?' After presenting the letter, Abernethy glanced at it for a moment, stuffed it into his pocket, and vouchsafed the gracious reply of 'Oh!' As this did not seem to point to anything very definite, Owen, after waiting for further remarks and enlightenment, was turning away to go when Abernethy called after him, 'Here; come to breakfast to-morrow morning at eight;' and, presenting him with his card, added: 'That's my address.' What were the terms in which Dr. Barclay had spoken of him Owen never knew, but he thought they must have been favourable, for when he presented himself the next morning at Abernethy's residence, and was anticipating anything but an agreeable *tête-à-tête* with the great doctor, he found him, to his surprise, considerably smoothed down,

and quite pleasant in his manner. The result of the meeting was, that Abernethy offered him the post of prosector for his lectures. The prosector, amongst other obvious advantages, was not at the expense of purchasing his own subjects for dissection—no inconsiderable item of expenditure then; and further, the subjects provided for the lectures were in a much sounder and fresher condition, comparatively speaking, than was usually the case in those body-snatching days.

From such a chief as Abernethy, Owen could not fail to profit. As a rule he fared well at the hands of his Professor; but on one occasion he provoked Abernethy to anger. The lecture was on the human kidney, which Owen had duly prepared; but unfortunately, in the process of preparation the part known as the suprarenal capsule came off, owing most likely to its not being quite so fresh as it might have been, and in a great hurry the prosector carefully fixed it on again—but to the wrong end of the kidney. Abernethy's explanations were somewhat far advanced before he found this out, and not looking very closely at the specimen he held in his hand, he was elaborately describing its structure, as if it had been a normal kidney. When he discovered the error committed, he did not let the occasion pass without bestowing a few flowers of speech upon his young friend.

In the same year Owen was elected a member

of the Abernethian Society,[1] and communicated to that body a few pathological papers.

On August 18, 1826, Owen obtained his membership of the Royal College of Surgeons. His diploma is signed by John Abernethy, Astley Cooper, Anthony Carlisle, T. Forster, Everard Home, William Blizard, Henry Cline, William Norris, William Lynn, and Leigh Thomas. He set up as a medical practitioner at 11 Cook's Court, Carey Street, Lincoln's Inn Fields, and gradually secured a small practice among the lawyers. Owen's peculiar ability as a dissector had not escaped the eye of Abernethy, then President of the College of Surgeons, who, much concerned at the neglect of the collections formed by John Hunter, which had recently been purchased by the Government and handed over to the care of the College, insisted on his old pupil undertaking their arrangement. As Abernethy said, 'The collection was located near his private residence; he could devote his leisure hours to the work; there was no one else equally qualified to do so.' Owen undertook the task, and was thus associated

[1] The name of this society was formerly the 'Medical and Philosophical Society of St. Bartholomew's.' It was founded by Abernethy in 1795, and took the name of 'Abernethian Society' in 1832, the year of Abernethy's demise. In a *Sketch of the Abernethian Society*, by Rowland H. Coombes, in vol. iv. of *St. Bartholomew's Hospital Reports*, 8vo, 1868, we read:—'In 1826. Richard Owen read two papers: one *On Encysted Calculus of the Urinary Bladder*, and the other *A Case of Gluteal Aneurism with Ligature of the Internal Iliac*.'

with William Clift, at that time Conservator of the College museum. As assistant to the Conservator, Owen was engaged at a quarterly payment of 30*l.* Two years later this salary was increased to 150*l.* per annum, but he held the position only 'during the pleasure of the Board of Curators.'

When first appointed Owen found at the museum no adequate catalogue of any department, either MS. or printed.

The patience of the trustees and of the public, which the promises of Sir Everard Home had tried for twenty-five years, had become exhausted. Owen's first difficult task, therefore, was to prepare a descriptive catalogue of the collections which had been transferred by Government from John Hunter's temporary museum in Castle Street to the College of Surgeons. This collection, wrote Owen in his diary, 'consisted of undissected specimens in spirits, the majority of which had been presented by Mr. (afterwards Sir Joseph) Banks to John Hunter, who had supplied Banks with large stoppered bottles of alcohol, for any soft animals captured during the circumnavigatory voyage of Captain Cook.'

On hearing of his appointment as Assistant Curator, his mother writes to him on March 12, 1827, from Lancaster, that she is 'thankful to have a son who has been such a credit to his family,' and that she 'has no doubt but that he

will ultimately be an honour to it as well.' 'All your friends here,' she continues, 'are much pleased, and say that you are a lucky young man to meet with an appointment of the kind while numbers of the profession hardly know which way to turn. It is evident to me that your good conduct, added to your abilities and industry, have gained you the notice of the Professors. Should you, my dear boy, be in want of money before your quarter becomes due, do not hesitate to say so.'

It was in September 1827 that Richard Owen first met Miss Clift. She was one day hanging in her mother's room a pair of bell-pulls which she had made; but in getting down from the step-ladder she overbalanced herself and had a bad fall, which completely stunned her. Her brother, William Home Clift, immediately called in Owen, as the nearest surgeon at hand, to attend to her injuries. When the young lady came to, the first person she saw was her father's colleague. 'I had once before seen him and spoken to him,' she writes in her diary for 1827, 'but I had not noticed him much, for it was on the occasion of his being called in during William's illness, and we were all rather frightened at the time.' Soon after there appear in her diary sundry little notes to this effect:—'R. O. gave me a carved tortoise-shell comb,' and 'R. O. gave me a volume of Cowper's Poems.'

Before the end of the year Owen was engaged to be married to Miss Clift.

William Clift had a sincere affection for his assistant, and from his letters appeared to have no objection to his marriage with his only daughter. Whatever opposition there was to the match proceeded from Mrs. Clift, who insisted that Owen should have sufficient means to provide for her daughter, before she would hear of the marriage taking place.

In the following year (1828) Owen was appointed Lecturer on Comparative Anatomy at St. Bartholomew's Hospital, an appointment which was the starting point of his career as a lecturer.' This was not a particularly remunerative post, and he soon found, even joining the stipend to that which he was receiving as Assistant Curator of the Hunterian Collections, that if he were to think of getting married he must look out for something which would provide him with sufficient means to do so. In October his mother writes :—

'I am most anxious, my dear boy, for your improvement and success in your profession. I have lately been reading a book entitled "Publick Characters in the Year 1823," amongst the rest Peel, Scarlett, Sir H. Halford, &c. Many of the characters are men who by perseverance and steadiness in their profession have made their mark in the world, and one observation particularly

I will quote from the "Lives." "One thing indeed can never be too strongly recommended to young men aspiring to rise in their profession, whether such profession be the law or physick: let them, if within their means and power, *become the pupils of some person already eminent and in high repute*; by such a preparatory course they obtain two great objects—a well-grounded professional knowledge, and the opportunity of becoming known to all the friends and connections of their instructor." Now, my dear Richard, I do flatter myself that you will ultimately become great in your profession, and, should it please the Almighty to spare me till then, I trust in His good Providence for the rest.'

Towards the end of 1829 or the beginning of 1830, Owen heard that the post of House Surgeon to the Birmingham Hospital was vacant. On January 7, 1830, he left London at a few hours' notice, thinking that if he obtained this appointment it would further the ends he had in view. There is no doubt that his affection for Miss Clift had a great deal to do with this attempt which he made at improving his position; for he saw but little prospect of advancement if he stayed on at the College as assistant to the Curator, because Mr. Clift's only son, William Home Clift, had been promised the curatorship on his father's death.

As will be seen from the two following letters, Mr. Clift even while acknowledging the loss which

Owen's success would be to him, greatly interested himself in furthering his application for the Birmingham appointment.

The first is a letter addressed to Joseph Hodgson, who was one of the officials connected with the Birmingham Hospital.

Lincoln's Inn Fields: January 7, 1830.

'My dear Sir,—The suddenness of Mr. Owen's departure for Birmingham prevents me from writing you a long epistle on the occasion; and therefore, without further preface, I beg leave to recommend him strongly to your good offices; which, when you know him so well as I do, I firmly believe you will not think ill bestowed. You will find him exceedingly well informed in all that relates to his profession, an excellent anatomist, and sober and sedate very far beyond any young man I ever knew. If you succeed in depriving me of his assistance you will do me a great disservice; but if it is for his good I should be very sorry that you should think me so selfish as to wish him to remain here when he might, in such situation as that to which he aspires, be so much more advantageously employed, both to his own advantage and that of your hospital institution, as being more suited to his talents and his inclinations than anything we have here to offer him as an inducement to stay. I can only add, if he succeeds as he deserves, he cannot fail to do well; he

will, moreover, I may venture to affirm, set all poor students a good example for close application and attention to their professional and moral duties.

'With best wishes for your health, I remain,

'My dear Sir, yours very sincerely,

'WM. CLIFT.'

Joseph Hodgson, Esq.

Four days later Clift addressed a letter to John Abernethy, on the same subject, from which the following is an extract:—

January 11, 1830.

'I have this morning received the enclosed letter from MR. Owen, who is now in Birmingham.

'If he succeeds, as he deserves to do, I fear I shall lose the advantage of his assistance just now when it was most needed, and when he was becoming most useful from the knowledge he had acquired of the business of the museum; but of course no one can blame him for endeavouring to better his condition if it is in his power, and I only hope that the situation, if he succeeds in getting it, will be to his advantage, for I really believe him to deserve all the good that may befall him; and from his steadiness and sedateness, combined with his extensive knowledge for so young a man, I think the Hospital must be much benefited if they retain him there . . . . He

passed very creditably at Apothecaries' Hall at only one day's preparation or rather reconsideration, which was no bad proof of what was in him, as he could hardly have been said to have attended to that subject for the last three years. . . . .'

The first letter of Owen's which is preserved is one written about this time to his future wife, with reference to this appointment. All his letters to her are characterised by sound common-sense, and are affectionate in tone without being sentimental. There is emphatically 'no nonsense about them.'

*Richard Owen to Miss Clift*

January 9, 1830.

'Dear Caroline,—At present the chances are that I shall return to you for good and all.

'The greatest advantage that can accrue from my present undertaking is a lucrative practice in the town of Birmingham, and that (*hélas !*) only after some time. I therefore hope rather to return to you, even in the event of my election, should any circumstances ever render my services of worth to the College, and I shall return with the satisfaction of having studied my profession practically under a surgeon like Mr. Hodgson, and perhaps be able to compete with some of the Londoners.

'Whatever be my lot, it is now more interesting to me than ever, for such must be yours.

'Farewell! God bless you, my love, and kiss your mother for me.

'Your RICHARD OWEN.'

To Miss Clift.

Writing to William Clift from Birmingham on January 9, 1830, he says: 'The sentiment expressed by all the medical officers I have spoken to is that they are afraid the situation is too poor an object, or hardly worth my acceptance, and that they should consider themselves fortunate to have me elected to it—a sentiment both flattering and discouraging. My heart yearns towards the "happy Fields." . . .' After stating that he has enclosed notes for Sir Astley Cooper and John Abernethy asking for their testimonials, he adds: 'I am ashamed of this disjointed scrawl and of causing so much trouble about my stupid self, who ought to have staid at home and minded my bottles.'

It soon becomes evident that Owen found the post unequal to his expectations, and that he abandoned all desire to obtain it.

On January 12, 1830, he again wrote to William Clift from Temple Row, Birmingham (Mr. Middlemore's):—

'Mr. Hodgson explained to me many particulars respecting the situation, which they have cut down a good deal; he entered very fairly into every advantage connected with it, and what it

might tend to. It would be at least ten years (and perhaps rather improbable in so short a time) ere I could calculate on sitting down and paying my own expenses as a surgeon and apothecary in Birmingham; and a year or two longer before prudence would permit marriage—should everything go on well!! So that, my dear Sir, I request you to suspend any exertions or trouble you may have in hand at present on my account. It is indeed solely for such trouble as yourself, and in a minor degree one or two in this town, have been put to, that I have reason to feel regret; for my own little share I have nothing to fret about; it has given me a little more insight into and mixture with the world; more established me in my future views, and made me better value the opportunity of labouring with yourself.

'I trust, under these circumstances, you will exonerate me from the charge of fickleness. The first prospect being so good, I spared no pains to give myself a chance, or at least to know the chances; and if they are too strong against me, it surely is best to withdraw timely, and not sacrifice too much time or money. I wish I knew the feelings of the College on the step I have taken, but I cannot imagine it to be calculated to give much offence. However, my mind is made up to try any chance rather than sit down with the dreary prospect of ten long years' fag and saving of

scraps, away from those I love most and the society I take such delight in.'

In a letter to Miss Clift, Owen writes two days later (January 14, 1830):—

'You know not how rapidly I have succeeded in gaining golden opinions from all sorts of men in this place. You have lent me your attractions and have prompted me in all my interviews. To give you an idea: the whole medical staff met and decided that, though they had pledged themselves to give no opinion on the merits of the candidates till February, yet they were so unanimous in my favour that they would commence an active canvass for me, and justify themselves on the plea of the good of the institution; they changed the name, too, from House Apothecary to Resident Medical and Surgical Officer. And one of the old physicians said I should have come in as it were by acclamation—nay, the expressions of goodwill have been so flattering to me, that it has made it almost painful to announce to them my determination to resign.

'But the die is cast; you shall be with me ever, and guide, and prompt, and see my exertions.'

In a few days Owen was back again at work on the Hunterian Catalogue, devoting the intervals of time which were not spent in the museum of the College of Surgeons to the development of his medical and surgical practice at 11 Cook's Court, Lincoln's Inn Fields. This practice was

chiefly, though not entirely, amongst young lawyers, and in some cases his relationship with them was such as to lay the foundation of not a few lasting friendships.[2] He also diligently visited the poorer classes of the neighbourhood.

Owen at this time began to apply himself industriously to the dissection of such animals as died under the care of the Zoological Society of London, and this he continued to do for many years after, thereby gaining valuable materials for most of his contributions to the 'Proceedings' of that Society. He became a Life-Member in 1830, was soon elected on the Council, and took an active share with their then Secretary, Mr. Vigors, the Vice-Secretary, Mr. Ed. Bennett, Wm. Yarrell, and Thos. Bell, in the establishment of the evening meetings for the purely scientific aims and works of the Society, and the prompt publication of the facts communicated on those occasions.

These originally appeared as the 'Proceedings of the Committee of Science,' in 1830; and they took the title of 'Proceedings of the Zoological Society of London,' in 1833. A large proportion of Owen's zootomical researches is to be found in these volumes. His first zoological paper (1830–31) was 'On the Anatomy of the Ourang-outang,' while in the same year he contributed his first surgical paper to the 'Trans. Med.-Chir. Soc., 1830,' 'An Account of the Parts concerned

[2] Notably with Chief Baron Pollock.

in the Aneurism for the Cure of which Dr. Stevens tied the Internal Iliac Artery at Santa Cruz in the Year 1812.'[3]

In 1830 three parts of the 'Catalogue of the Hunterian Collection in the Museum of the Royal College of Surgeons in London,' 4to, were published. No author's name appears on any of the six parts, but Owen was entirely responsible for part iv. (1), and there is no doubt that he assisted Clift in the preparation of the other parts of this preliminary list.

Owen sent his old friend and preceptor, Dr. Seed, a copy of this work as soon as it was ready, and received the following reply:—

Lancaster: November 12, 1830.

'My dear Owen,—Accept my thanks for the book. I received it with peculiar pleasure, and contemplate it as the dawning of a talent which,

[3] 'Dr. Stevens,' writes Owen, 'had transmitted an account of this operation, the first, he believed, which had been performed on that artery, in 1812, from the island of Santa Cruz, announcing its success. Doubts were entertained and had been publicly expressed, as to the possibility of reaching so deep-seated an artery. The patient, restored to health, died in 1822. The part of the body concerned in the operation was preserved in spirits and brought to England by the operator in 1829. Dr. Stevens,' Owen continues, 'at the suggestion of Mr. Lawrence, deposited the preparation in the museum of the Royal College of Surgeons, and, the dissection being intrusted to me, he requested me to communicate the particulars to the Society. The result of this dissection was to demonstrate the fact of the application of the ligature on the internal iliac artery, and its effect on the obliteration of the aneurism.'

I prophesy, will do you honour. The vineyard in which your industry is occupied will bear fruit worthy the labourer, independent of the incalculable advantage which will accrue to your interest and improvement. Your wonted industry and application will ensure your good fortune and prosperity. In my humble opinion, you have estimable merit and must shine in the profession, provided your good sense keep it, under all circumstances of fortune, under proper government. . . .

'Believe me your faithful and sincere friend. In haste

'J. SEED.'

Of the five Descriptive Catalogues of Hunter's Collection, vol. i. was ready in 1833, and the year following vol. ii. appeared. After finishing vol. i., Owen set to work to prepare another and separate catalogue—'Preparations presented by Sir William Blizard to the Royal College of Surgeons, London.' This 4to volume came out in 1832, appearing between vol. i. and vol. ii. of the Hunterian Catalogue. The task of describing the Hunterian Collections was a Herculean labour. Most of Hunter's MS. had been lost or destroyed, and the collection, as it stood, was practically useless. Three thousand nine hundred and seventy specimens had to be examined and described, and for this purpose

Owen was obliged, in a large number of cases, to obtain and examine fresh materials. In this way the volumes of the Catalogue appeared, year after year—'a work of scarcely inferior importance to the museum itself.'[4] No more fitting field can be imagined for the development of Owen's genius.

In the early part of September Owen took a rest from his work by staying a short time at Lancaster with his mother and sisters. He never lost an opportunity of paying a visit to his native town. Writing to Mrs. Clift from Lancaster, September 13, 1830, he describes his journey through Birmingham and Manchester. His letter gives a good idea of the discomforts of travelling in the early part of the century.

'My journey,' he says, 'to Manchester was a very wet one, and marked by nothing in particular but a very musical guard, and that instead of riding over the Derbyshire hills I found myself, to my great surprise, discharged at the Swan Inn, Birmingham, about nine o'clock in the evening. They told me that the coach for Manchester would start in half an hour; but it was near eleven o'clock before we started, so I was prevented from calling on any one in that place, in consequence of momentary expectation of being called upon to mount the coach. The night set in so drearily that I agreed to take an inside place if

[4] Knight's *Eng. Cyclop.*: Biography.

there should be a vacancy, for the Worcester coach had to carry us on to Manchester; however, it was full inside, so I was compelled to mount the box. The rain slackened about four in the morning. I was "nid-nid-noddin'," and saw all manner of odd things in the road—thought I saw you sitting on the off leader's crupper, and nearly bolted forwards in an attempt to shake hands; when I recovered myself, you were gone and the leaders were making towards the parapet of a small bridge. I punched coachee in the ribs, and seized hold of the reins; he woke up just in time to back us into the middle of the road, but got to nodding again as soon as he cleared the bridge, so that I was kept effectually awake for the rest of the stage when daylight fairly broke upon us. The thick white masses of cloud rolled sullenly off, scattering a few drops as they passed over us; but at length the sun struggled upwards and shone out upon us all day. At eleven o'clock in the morning I reached Manchester, at six in the evening Lancaster. The approach to the town was rendered very beautiful by the clearness of the atmosphere, and the evening sun gilding the turrets of the old castle.'

After his return to London his mother writes: 'I have, my dear lad, read your Catalogue quite through, *Latin and English*, and have had the pleasure of seeing your name in a philosophical

review describing the air-vessels of the gannet,[5] and also in some other periodical. . . . . You may suppose what pleasure such things give me!'

In a somewhat later letter she says:—

'I am sure you will be looking for a line from your mother, so I avail myself of this opportunity of sending you a letter.

'I sincerely hope you have got through the difficult task of describing the finny tribe, serpents, &c., and that your avocations will not deprive you of taking the air and proper exercise so essential to health. I have been much interested with your Catalogue, which I have had great pleasure in perusing. . . . . I long to see your account of the Orang[6] when it comes out in full. We were much amused with the correspondence on the subject. I hope you will be properly paid for what you are to write on those beautiful birds of Captain B.'s[7] for the Zoological. . . . Present my kindest respects to Mr. and Mrs. and Miss Clift. . . .'

In this year, while Owen was engaged on his Catalogue of the Hunterian Collections, and in the private practice which he had started in Cook's Court, he had the good fortune to make Cuvier's acquaintance; for it was in 1830 that Baron Cuvier paid his last visit to England. This visit,

[5] Gannet (*Sula bassana*) *Proc. Zool. Soc.*, 1831, p. 90.

[6] This paper, begun in 1830, was finished shortly after this letter.

[7] Captain Beechey.

happening during the time of the abdication of Charles X., caused the report in this country that Cuvier had fled to avoid danger; but the facts were that the opportunities of absenting himself were rare, and that he felt the necessity of coming to England, more especially to gather materials connected with his great work on fishes.

In a little note which Owen has written in a Memoir of Baron Cuvier, he attributes his personal introduction to Cuvier mainly to the fact that the great anatomist was unable to understand English and converse in it, while Owen understood French perfectly, and could speak it with tolerable fluency.

'In the year 1830,' he writes, 'I made Cuvier's personal acquaintance at the Museum of the College of Surgeons, and was specially deputed to show and explain to him such specimens as he wished to examine. There was no special merit in my being thus deputed, the fact being that I was the only person available who could speak French, and who had at the same time some knowledge of the specimens. Cuvier kindly invited me to visit the Jardin des Plantes in the following year.'

The result of Cuvier's invitation was that, in July 1831, Owen visited Paris for the first time. Cuvier was still engaged with Valenciennes in preparing their great work on fishes, on which both expended an enormous amount of time and

labour. During this visit to Paris, Owen examined the fossil vertebrate collection and received some hospitality and attention from Cuvier. How far these opportunities affected his mind with regard to this branch of scientific study is a matter which is open to question.

If it is the case, as nearly all memoirs of Professor Owen agree in stating, that Cuvier and his collection 'made a great impression on Owen, and gave a direction to his after-studies of fossil remains, in which he was so eminently distinguished himself,' then Owen has left no record of that 'impression.' His rough diary, which he kept during his stay at Paris, seldom mentions the fossil vertebrate collection, and shows that his interviews with Baron Cuvier were for the most part of a purely social character. It notes, for example, that he attended pretty regularly Cuvier's *soirées*, held on Saturday evenings, and that he enjoyed the music. With the diary agree his letters. Both devote page after page to the sights and amusements of Paris. Owen, in fact, seems to have regarded this stay at Paris as an exceedingly pleasant and entertaining holiday. At the same time it is impossible to form a just estimate of Owen's work without taking the labours of Cuvier into account. Although Owen stands on ground wholly his own, he was ever willing to acknowledge the debt which he owed to Cuvier. The relationship of the work

of these two men has been compared with that of Turner and Claude in painting. Turner, it was said, is independently great, though it is doubtful if without the works of Claude 'he would ever have painted that marvellous bit of cloud which hangs side by side with Claude's *chef d'œuvre* in the National Gallery.'

*Richard Owen to Mr. Clift*

Hôtel du Jardin du Roi :
Rue Copen. No. 4, Paris.
August 2, 1831.

'My dear Sir,—My absence would assure you that I was in time for the steamer, having got on board ten minutes before she sailed; she lay just below melancholy old London Bridge, and I saw the tents erected preparatory to the *fête* of her rival and prophetic of her own (fate!). I need not say how much I enjoyed the sail down the river, or dwell on the interesting objects that successively presented themselves. When I passed the Deptford chalk I thought of you, but was too far off to distinguish any fossil bones sticking out. Twenty men-of-war lay off Sheerness. Just before sunset, which was very fine, I saw a *Delphinus tursio*? rolling onwards to the Thames. The moon produced a very fine effect as it rose out of the Zuyder Zee, scattering a flood of light over the flickering waves, whilst around it the haze appeared to reflect a glow of light like a distant

fire. Notwithstanding these scenes, however, I felt my heart beat quicker and my rheumatism disappear as the revolving light of Calais came into view. At the Hôtel Meurice I first saw the painted walls and sanded floors, and determined to quench my Anglicism in a basin of bouillon; it procured me a good night's rest, I believe. The next morning at half-past nine I entered the *coupé* of the diligence; my fellow-traveller was a Dr. Sayer, of London, who had been detained by Buonaparte in 1802, as he was returning with his father from a tour which made his visit longer by ten years than he intended. It was a beautiful moonlight night when we entered Abbeville, which gave an air of romance to the antique houses, the Abbey, and walls of this old city. I recollected that this was once the frontier town of the Spanish Netherlands, one of the thirty possessed by that overgrown state; and the habits of its various occupants and the mutability of empires came crowding on my mind, when the reverie was interrupted by the more important circumstance of supper. The country through which we passed had put on its richest appearance—ripe corn, beans, hemp, and vines in full foliage alternate with each other, and the labourers of the harvest are in full song. Yet, notwithstanding, I am struck with the inferiority of this to our own country in point of all the ordinary consequences of civilisation and pros-

perity—few people to be seen on the road, still fewer houses, and these but poor mud cottages; no private travelling, no carriages, but now and then a solitary *estafette*. What an *outré* thing is a diligence! Two coaches and a chariot joined by symphysis or harmonia, sometimes five, sometimes six or seven horses, ropes every now and then breaking; the postillion always picturesque. Nevertheless, I never slept more comfortably in a coach than in the *coupé*; and while travelling in a strange country should always prefer making my observations at a rate not quicker than five or six miles an hour.

'It was nearly eight when we reached Paris on Friday night (29th). We met numerous groups of the Garde Nationale Rurale returning from the grand review. On alighting we were told of the illumination and fireworks about to take place, so I determined to stay that night at the Hôtel des Messageries, and, after having got my luggage into my apartment and some refreshment into myself, I posted off to the Place Louis XV., which I was told would be the best place for seeing them. Imagine me following my nose and such directions as I could comprehend, hustled about in the crowd, every minute in danger of being run over, and then on a sudden turn finding myself in the most beautiful place in the world, among noble walks, statues, flowers, fountains, glassy pools—in short, in the garden of the

Tuileries, brilliantly illuminated and traversed by thousands of Parisians in their gayest attire. Here I wandered slowly about, now gazing at the sculptured deities, now stopping to smell at rare plants in full flower, till at length I found myself on a terrace and looked down upon an immense place bounded by illuminated houses. I then approached a large building, the windows of which were filled with officers and ladies, and at one end, where the rooms appeared to be most brilliantly lighted, and towards which I had strolled, I heard a window suddenly thrown open and a fine form in the national uniform leant forwards gracefully, waving welcome with his hand to the crowds below, whose responsive shouts left me in no doubt that it was the King. A gun fired and a rocket shot up from the front of the palace, which was answered by an immense flight of rockets, red, blue, and green balls from the Pont de la Révolution, which were followed by others in rapid succession, crossing each other and blending their different coloured balls in a beautiful manner. I should think altogether double the number of those expended during a whole season at Vauxhall. Then came a shower of lights which made it brilliant daylight in that quarter.

'The King then again came forward with his sons and his wife leaning over his shoulder, and a crowd of ladies and officers behind him. 'C'est magnifique, c'est superbe!' how often I

heard them exclaim, and also, 'Mais, monsieur, vous êtes trop grand,' as they tried to peep over my shoulder. At eleven I reached my hotel, and slept sound in spite of the shouts and firing. The next morning I set off to the Hôtel du Jardin du Roi; not the one I spoke of, for I thought it best to be close to the spot. I met M. Royer in the garden with a sister of charity, who had come to beg a few camomile tops. I left my letter with him for Mr. Pentland,[8] and he told me to call again, on Monday before nine, and he would introduce me to Cuvier. His inquiries after you and all the family were warm and frequent, and his good wishes towards you, I am sure, were sincere. Poor Laurillard is very ill at St. Germains. M. Royer did not scruple to say Cuvier was killing him with work—that when he was in town he (Laurillard) was employed drawing and writing from 6 A.M., sometimes to twelve at night. After this interview I strolled through the garden, and suddenly came upon the giraffe inclosed in a high paled inclosure along with some Indian species of oxen. He was standing in the sunshine and amusing himself by twisting his long tongue, and pulling out the straws which formed the partition between his and a contiguous inclosure. In walking I observed he first moves a fore foot; second, the hind foot of the opposite

[8] Joseph Barclay Pentland, some time British Consul in Bolivia, and long resident in Rome. Died 1873.

side, which is very quickly followed by the fore foot of the same side, and then the hind foot of the other side, and almost at the same time the foot which was first moved; the gait then proceeds, the legs of the same side appearing to move simultaneously, although not exactly, a trifling interval intervening before the fore foot is lifted up. While marching, his long neck is generally stretched out in a line with his body, but in almost every other attitude he strikes me as being a most beautiful and singular animal. If I can recollect the building I will put it as a background to the drawing in Caroline's Album.

'On Monday morning I called on M. Royer and found him at breakfast, after which he brought me to Cuvier, who was in one of his little rooms writing. I gave him the Catalogues, with your best respects, &c. He begged me to return his thanks to you for them and for the others which he had received. He thanks you also for the sketch of the Dasyurus; he then took me into the museum, and begged me to visit it whenever I pleased; and also to attend his *soirées* Saturday evening, after which he returned to his work. M. Royer then took me through the museum, gave me the necessary ticket for the other collections, presented me with his translation of Deleuze's "Hist. of the Museum," and I left him with the impression of his estimable qualities very strong on my mind.

'In the afternoon I went with Dr. Lauth (who lodges in the same hotel and desires to be remembered kindly and respectfully to yourself, Mrs. Clift, and all the family) to the Institute. There I saw Cuvier, Humboldt, Geoffroy St.-Hilaire, Blainville, Chaptal, Latreille, Jussieu, Dupuytren, Dutrochet (who read a paper), Milne Edwards, and also Mr. Underwood and Pentland. The latter promised to meet me in the museum this (Friday) morning to prove to me that the ox's bone is an elephant's; and he is going to-morrow to England, and will, I hope, take this letter to you.

'Since Monday I have spent every morning in the Museum of Comparative Anatomy and have examined four of the rooms. The labels on the preparations are more useful than ornamental, but I shall not say more here on this subject, as I have made notes in my journal. I have not yet seen any of the sights, waiting till the weather is a little cooler, for every day till to-day it has been at about 75 or 80 in the shade. I have occasional lessons in the afternoon on the violoncello from Baudiot,[9] who teaches at the Conservatoire, and I think with some little benefit already. I generally read the papers at Galignani's after dinner, where yesterday I met McWhinnie, who stayed

[9] This old man's proudest boast was that the Emperor Napoleon one day came up to him and offered him a pinch of snuff after one of his performances on the 'cello.

behind. Last night I went to the Théâtre Français, and saw "Ecole de Vieillards" and a new piece. I did not stay for the last, the theatre was so close. It is prettily built, but the decorations are faded. The statue of Voltaire in the *salle* is worth all the money.

'With my best love to all, believe me ever yours most truly,

'RICHARD OWEN.'

In the beginning of September 1831 Owen returned to London. His mother says in a letter dated from Lancaster September 8, 1831, 'that she thinks he must have been highly gratified by his "trip to Paris," and by the sight of all its wonders.' She hopes when he has time that he will give them a full account of it all. That account he sent soon after, for in another letter dated October 6, 1831, his mother writes thus:—'Thank you for the amusing journal of your visit to Paris, more especially for the time and trouble of writing it, as you had so much employment for your pen with the Catalogue, the finishing of which I shall rejoice to hear. I felt much concern about your health, fearing that, as you were not quite well, the hurry of seeing sights might have been too much for you. Your being noticed by Cuvier was fortunate, and your having access to his museum would be an advantage in your profession on

many accounts, and I trust you will reap the benefit of it ultimately. . . .

'I look forward with great and anxious pleasure to the time when we may expect you to visit Lancaster, my dear son, which I fear may not be till next summer—a long period for one at my time of life. . . .'

Owen was occupied during the end of 1831 and beginning of 1832 with the work which first attracted the attention of scientific men towards him, namely the 'Memoir on the Pearly Nautilus, 1832,' the description of which seemed to have given his mind a bent in a definite direction.

On the appearance of this memoir it was translated into French by Milne Edwards, and into German by Oken. In it the author enters, in a way characteristic of subsequent memoirs, into collateral questions on which the new facts threw light. He modifies the Cuvierian classification of *Cephalopoda*, based on characters of the shell, and proposes, on anatomical grounds, the orders *Dibranchiata* and *Tetrabranchiata*, which have been accepted.

He had meanwhile moved from Cook's Court to Symond's Inn, as we find from an old inventory of his furniture, some of which was sold in the move. In a letter to Miss Clift, dated from the College of Surgeons, April 24, 1832, he is anxious that she should lend him her assistance in 'endeavouring to abridge the term that opposes

itself to our union—to the consummation of the great happiness, as I do believe it will be, of both our lives.'

In the same letter Owen refers to his income, and gives some interesting details of his work:—

'I have heard that Harrot[1] and you once projected living like two Vestals in a cottage; do you think she would object to your introducing a third party into the plan, in the shape of your husband, who, besides the additional protection, might add to the resources of the company 200*l.* per annum? You know it must be in time, but at present our ruling Goths are blind to what every one else sees, which, to speak very modestly, is my merit. Mr. Keate is, I understand, very wrath because I have been proposed for the New Council at the Zoological Society, together with two lords and a baronet, but only let him express it in a tangible form. Nautilus[2] is nearly completed, and I am preparing a paper for the R.S. which, if the subject were your merits, would give me little trouble notwithstanding its necessary length. . . .

'Above all, trust me,' he concludes, 'your ever devoted and affectionate Richard.'

On May 3, 1832, Owen again writes to Miss Clift, who had answered the former letter:—

[1] A great friend of Miss Clift's, afterwards her bridesmaid, by name Miss Harriet Sheppard.

[2] *Memoir on the Pearly Nautilus.*

'You have now, my dear Caroline, effected what I have long wished; you have directed your thoughts in a definite channel on the subject of our approaching union, and have begun to think of it as a thing certain and fixed, based on a strong mutual affection, and an earnest desire to increase each other's happiness. . . . We must next calculate our *resources* and consider the best mode of applying them.

'My 200*l.* I think is certain so long as I remain at the College; but that, I felt, was insufficient, even for our wants alone, consistent with the respectability I am determined C. O. shall always command in the eyes of the world, and therefore the idea of the cottage shot across me as a present additional resource, and now, before saying more on that, let me detail to you my most probable expectancies. Some of the more enlightened members of our College, Mr. Brodie, Mr. Green, Mr. Mayo, and I believe Sir Astley,[3] have thought and talked of the propriety of establishing a permanent professorship, and a more regular and extended course of lectures than at present. I have been told by one of them that they have considered me as calculated to fulfil such an office (I confess I sometimes doubt my powers), and 500*l.* per annum has been hinted to me as the probable outside sum; with this I think I could be content, perhaps three

[3] Sir A. Cooper.

years might accomplish it, and then, with what happiness should I clasp my dear Caroline after having succeeded in my first course! Now, said I to myself, what is to hinder my dear Cary and me from quietly enjoying ourselves in a more humble way in the meanwhile, and then comes in the cottage and *Harrot*? Now, will you write to her or speak to her? for first we must not be too far off; *I must work and study hard*, and that I cannot do with effect, till I can "calm this troubled breast" and call you indeed my own.'

In a postscript to this letter Owen says: 'Notwithstanding this subject interests us so deeply, the grounds of our proceedings are plain and comprehensible, and I think you may safely trust your own judgment, as I would rather you should. I have from very early life been thrown among strangers and have had a greater control over my own actions than is usual, and am perhaps from habit too jealous of receiving even a bias from any comparatively indifferent person. I have the greatest confidence in your judgment; it was observing the admirable control you had acquired over yourself in circumstances that made me feel my comparative weakness that has chiefly tended to engender a feeling almost more than love to you.'

On May 11, 1832, he again writes to Miss Clift: 'I fear you open my letters with a more trembling hand than you direct your own, but you

need not dread the contents of this; in the short struggle we have had 'gainst Fate and Necessity you have performed your part nobly. . . . . I have now begun seriously to consider how I may improve my fortunes, and for that purpose have been exploring Chancery and other Lanes in the legal atmosphere for some sufficiently convenient and conspicuous consulting-room, for the only connexion I have is a slight one among the lawyers. I have had some distant overtures from the Zoological Society to doctor their brutes, but I feel some degree of repugnance at turning veterinary, though it were only for a time. . . . . I shall soon have effected that step which will remove much uneasiness from all [i.e. general practitioner.] I shall then only have to wait for what Providence pleases to send in the way of patients, and trust in time to be independent of the old governors,[4] who have been showing some crusty symptoms of late to all of us.'

During the time between writing the last two letters Owen evidently paid his first visit to Cambridge, for he says: 'Cambridge is the most interesting place I have ever visited, not even excepting Paris. I was there five days, during which my friend George Langshaw[5] took his M.A. degree. He stands high in his college, but notwith-

[4] Of the College of Surgeons.

[5] An old schoolfellow and fellow-townsman of Owen's, afterwards Vicar of St. Andrew's the Great, Cambridge, where his work was long remembered.

standing he has a fellowship, is going to enter the busy world as a curate at Birmingham, preferring activity to idle ease.' The letter concludes with a note that 'the viollo is decidedly improved.'

The following letter, written to Dr. Buckland just before the publication of Owen's paper on the Pearly Nautilus, is interesting as showing the importance Owen himself attached to the work he had just completed :—

*Richard Owen to the Rev. Dr. Buckland*

9 Symond's Inn : July 28, 1832.

'My dear Sir,—As there may be still some weeks' delay before the College copies of the description of Nautilus reach Oxford, I have taken the liberty to send for your acceptance one of the few private copies containing proofs from the first fifty sets of plates. Since the decease of the lamented Cuvier, there is no one whose opinion on this work I look for with more anxiety than your own. Being deeply impressed with the responsibility attached to the examination of an animal so rare, and regarded with so much interest by the most eminent characters in the scientific world both here and abroad, I have earnestly endeavoured to be accurate in the descriptive part, and neither to overlook nor overstate anything. But until this account be confirmed by the examination of a second specimen, much of its value will depend upon the light in which it is regarded by

the masters in natural science. If their opinion be favourable, how amply will my pains be rewarded!

'I remain, with much respect, your faithful and obliged friend and servant,

'RICHARD OWEN.'

Writing to Clift from Oxford, Dr. Buckland makes the following remarks on Owen's description of the Pearly Nautilus :—

'I received safe nearly a month ago Mr. Owen's admirable work on the Nautilus Pompilius, and am very much obliged by the early communication of it and highly gratified by the most able and masterly and satisfactory manner in which he has conducted the whole investigation of this most interesting animal.'

The following letter, written after the publication of the 'Pearly Nautilus' by Mr. J. B. Pentland to Mr. Clift, and dated from Paris, November 5, 1832, will show the estimation in which the work was held :—

'... We have seen here, but for a moment, your friend Mr. Owen's paper on the Nautilus, one of the most interesting additions to natural science that has been made for some time. How delighted poor Cuvier would have been to peruse it! But alas!

'My own movements are doubtful. I cannot leave Paris until I have completed what I have

undertaken to do for Madame Cuvier, and it is a debt I owe to him who is now no more.

'J. B. PENTLAND.'

In December we find Owen making experiments for Dr. Buckland as to the means by which the nautilus rises and sinks. The letters are technical, but the following extract shows Owen's ideas of Buckland's work:—'December 14, 1833. No one, however, I imagine, can refuse their assent to the theory you have so beautifully developed, and I feel much honoured by your being pleased to think it of any moment to add to your observations, that I am perfectly satisfied and convinced that it affords an adequate explanation of the means by which the nautilus rises and sinks, and is also in harmony with what we may reasonably conceive to be the movements of the animal both at the surface and the bottom of the sea.'

About a year later Sir Anthony Carlisle thus addresses Owen on the subject of the Pearly Nautilus:—

'My dear Owen,—I have lately looked through your story of the Pearly Nautilus, and am better satisfied with the *dark* engravings. The letterpress improves on re-reading. It is an excellent specimen of Hunterian-Cuvierian Natural History, but, as I at first foresaw, your *pearls* are thrown before swine. If the English medical hog-

trough should be cleared out in our time, there is a gleam of hope for science among a *small* few, but you must not feel disappointed by the general neglect of your researches. . . .

'Ever yours,

'A. CARLISLE.'

In September 1832 an event took place which entirely altered Owen's prospects at the College of Surgeons. Hitherto, as has been stated, he was assistant only 'during the pleasure of the Curators,' and his fellow-assistant was William Home Clift, Mr. Clift's only son, who had been promised the post of Conservator at his father's death. Owen was quite aware of the fact that, as things stood, he had no chance of advancement in the museum.

But on the 11th of this month, Miss Clift states in her diary, that as young Clift was returning home one evening in a cab, the driver on entering Chancery Lane out of Fleet Street turned too suddenly, upset the cab, and pitched her brother on to his head. He was taken up insensible and carried to St. Bartholomew's Hospital, where he was received by Owen. It was soon found that he had sustained a fracture at the base of his skull, and he died after lingering a few days. At the time Mr. Clift was away from home taking his holiday in the country, and, as he was travelling about from place to place, it was some days before the news could be communicated to him.

He only arrived to find his son at the point of death. It was naturally a great grief to Mr. Clift, but at the same time it was a consolation to know that Owen would eventually stand in the place of his son, both in the museum and at home. After the death of William Home Clift, Owen remained the only assistant, and was paid at the rate of 200*l.* per annum until July 1833, when his salary was increased to 300*l.* per annum—i.e. to the same amount as that which the Conservator was receiving, except that the latter received an extra gratuity of 100*l.* annually.

The Christmas of that year Owen spent in Lancaster, and in a letter dated December 24, written to Mrs. Clift to announce his safe arrival, he says: 'Everything shows how little change Lancaster has undergone since the days of my childhood. . . . I sent for the barber this morning to hear all the current scandal, &c.' He also mentions a delay of three hours in getting to Manchester 'in consequence of the coach taking in, I should think, near a 'ton of oysters at Islington.'

# CHAPTER III

## 1833-36

Eton in 1833—Professor of Comparative Anatomy at St. Bartholomew's, 1834—F.R.S., 1834—Marriage to Caroline Clift, 1835—Early Married Life.

WHILE preparing the Catalogue of the Hunterian Collections, and in the intervals of his work as a medical practitioner, Owen founded and wrote the greater part of a periodical which was issued in monthly numbers, called 'The Zoological Magazine.' This he carried on at his sole cost from January to June 1833, but after six numbers of it had appeared he disposed of the copyright to the printers, Taylor and Francis.

In April he received the news of his election into the St. Bartholomew's Club, which was founded in 1832, and consisted of officials and past and present students of the hospital.

In July 1833 Owen accompanied his old schoolfellow, George Langshaw, to Eton, and the following long letter to his mother, dated College of Surgeons, July 29, may be found of interest:—

. . . He (George Langshaw) wrote to me last week to come over and witness the festivities which usually take place when the Eton boys break up, and the interest of the scene and place, with the fine weather, made the offer too tempting to be resisted. . . . My opposite neighbour in Symond's Inn—Mr. Hepworth—kindly offered me the use of his mare . . . and thinking the exercise would be of service to me I ventured to accept the offer. Behold me, then, at 9 A.M., Saturday morning last, cantering through Lincoln's Inn on a very handsome and pleasant-going nag, threading my way with some degree of nervousness among the cabs and carts and other vehicles of the crowded streets, and thankfully leaving the same at Apsley House, where I turned into Hyde Park. There a pleasant shady ride extends to Kensington, where you again enter the main road, along which I went pretty quickly till I got to the "Black Dog," near Staines, where we rested for an hour and then went leisurely on to Windsor. . . . At a quarter-past three I reached Eton, and, having put up my nag at the "Christopher," opposite the College, went to Miss Middleton's, next door to the inn, the dame with whom Langshaw and his pupil, Lord Blantyre, reside. . . . Some of the boys having had leave to go before the day of dismissal, I had one of their rooms on the ground floor, which, as it will give you an idea of the accommodation the

young gentlemen have, I will describe. They are limited to a single room each, in which there is a turn-up bed, with their chest of drawers and wash-stand; two or three chairs, a small table, reading stand, and book-case complete the furniture. My room looked into the same garden as George's. 'MYDELTON' cut on the bedstead indicated the previous possessor. . . . The dames' houses are all situated within the College, and built with a view of rendering escape from them as difficult and detectable as possible. The entrance to them from the street is by a long, low, and narrow passage, but the house itself is surrounded by gardens, which have high walls separating them from the fields; the windows of such of the rooms as might afford any outlet are barred and grated. . . . After dinner, went to hear the speeches of the scholars elected to King's College, Cambridge, spoken before the Provost of the College. On this occasion he sits in the Master's seat and takes precedence of him. The boys are in full dress and step out into a clear space in front of the Provost, behind whom are a series of raised seats for visitors. We were admitted on the floor, and sat behind the Fellows of Eton. It was a very interesting sight; the speeches were in Latin and Greek, selected from different classical authors. When that was over we proceeded to walk to the river side to see a procession of the boys in boats. They go up the

river in ten-oared cutters, each boat manned by scholars in their particular uniforms and carrying a flag with their own device; the steersman is dressed in midshipman's uniform. There were about eight of these larger boats with many of smaller size, the whole preceded by barges carrying the bands of the Blues and Foot Guards, playing alternately. Whilst this gay combination of pleasing sights and melody was following the windings of the stream, its progress was accompanied by troops of horsemen on the banks; these were headed by Prince George of Cambridge on a beautiful cream-coloured pony, with his companions, the two young Seymours, his tutor, and a number of grooms; there were also several officers of the Blues, who had probably been themselves Eton boys. Prince George often nodded to boys in the boats, who returned his salute by rising and taking off their caps. After a row of about three miles, the boats' crews landed and severally sat down to long tables, covered with a cold collation. The tables were placed in an enclosed piece of ground, round which a number of carriages had been previously collected, with the friends of the happy lads, who were now enjoying with a double zest their holiday festivities. It was amusing to see the little fags each waiting behind his master, handing the wine about, &c., and now and then treated with a glass themselves or a half-picked bone of chicken. I

observed, however, that the unfortunate bones were not released from maxillary exactions when the fags had done picking them, but were eagerly fought for—true bones of contention—by numerous smock-frocked urchins who surrounded the tables at more humble distance, a distance which the fags preserved by bestowing hearty aristocratic kicks on any intruder of the latter class. . . . The boats came racing down, the crews vociferating and taunting each other, elated with wine, and emancipated from restraint. Just above Eton Bridge there is a little island; here they had erected a stage for fireworks, and a triumphal archway, lighted with coloured lamps, bearing the Eton arms and motto, *Floreat Etona!* While the fireworks were let off the ten-oared boats continued to row round the island, passing at each circuit through the arches of the bridge; sixteen times these boys continued to pull round, and as they floated past the island every boat's crew stood up with their oars raised and cheered the insignia of their school. During this time the little island was illuminated by different coloured lights, red, blue, green, &c., the effect of which, upon the boats and the crowds which lined the river banks, was strangely beautiful. We could see lights in the apartments of the Castle (Windsor), where the royal party were watching the operations of the boys. . . . Next morning we breakfasted together in George's room, after which we

settled our operations for the day, proposing, first, to go to Windsor Church and hear Milman the poet preach a charity sermon; second, to go and hear the concluding anthem at the Chapel Royal and see the King and Queen come out; third, walk on the terrace; fourth, return and lunch; fifth, go to Eton College Chapel; sixth, go again to the terrace and hear the bands play; seventh, return and dine, after which I was not sorry that a shower of rain confined us at home, for I felt rather stiff. The chanting at Eton Chapel was beautiful. I sat in one of the stalls next the reader; opposite me was Dr. Keate, the justly dreaded Head-master, the sight of whose countenance is said to strike terror into the boys long after they have left school, and truly it is awful. When service is over the boys remain till they have permission to go out, and they press forward in a dense mass in the body of the chapel opposite the Master's seat waiting for the word of command.

'After breakfast on Monday morning we went to Eton College, but without any certain plan of getting into the schoolroom to see the ceremony of breaking up. Two companies of Foot Guards had piled their arms in the outer court ready to receive their Majesties, and a detachment of the Blues were parading up and down the road in front of the building. The groups of boys were scattered about planning their holiday amusements and modes of de-

parture, and a concourse of ladies had assembled at the door leading to the back of the schoolroom. This part was occupied by a series of raised benches behind the seats appropriated for their Majesties and suite. In front of the latter was a semicircular space destined for the speakers of the speeches; the rest of the schoolroom was occupied by series of forms disposed lengthwise, and rising one above the other on either side a middle alley leading from the main entrance of the schoolroom to the open space in front of the royal chairs. From this description you will perceive that, had we gone in with the visitors, we should have been behind the King. George, therefore, cast about for one of the masters, who intimated to us that if we came in along with the boys we might slip into the side seats flanking the middle alley, and he thought that, as George was well known to many of them, they would not treat us as intruders. We accordingly crept in with the rear and clambered up into a capital place for seeing the *tout ensemble.* In the meantime Dr. Keate was darting up and down the middle alley marshalling the boys and enforcing order and silence, which he had some trouble to do, as some of the urchins seemed inclined to be rebellious on the eve of emancipation. Black neckcloths are forbidden to the scholars; but many of them had put them on in a spirit of boyish daring this morning. Still, such

was the influence of old Keate's countenance, that, whichever way he turned, the unacademic handkerchiefs were whipped off or hidden by the brim of the hat. George felt averse to being seen in a place not appropriated to visitors, so he stooped behind the boys, and I sat down to be out of sight. Keate, however, espied me in that posture, and thinking it was an oppidan, said sharply, "Sit up, sir; sit up, sir!" At which I gathered myself gradually high above the rest, like long Tom Coffin, to the great amusement of the lads, who laughed heartily both at the Head-master, who looked a little confused, and myself. This amused George very much. At length, the middle alley being cleared, the Head-master and the rest walked out to prepare for the reception of their illustrious visitors. Two of the College porters, with staves crossed, blocked up the entrance, by which the scholars and ourselves had come in. Soon after, the trumpets and roll of the carriages announced the royal party's arrival. We had by this time insinuated ourselves within one bench of the middle alley, and very near the open space, so that we had the best possible view of the King and Queen as they marched in procession with the Court and the heads of the College along the alley. His Majesty was received with loud cheers from all the boys, and waving of hats, which he graciously returned before he sat down. The Queen took her seat a

little way to the left of the King, and on his right hand, but closer to him, sat the Princess Augusta. With the usual officers of the Court were the Duke and Duchess of Rutland, Marquis and Marchioness of Londonderry, &c. The seats behind the royal party were crowded with ladies and a few gentlemen. Milman sat in the middle of the front seat; the officers of the Guards scattered about added to the brilliancy of the scene. Immediately behind the King's chair stood Dr. Goodall, the Provost of Eton, and on either side of him the fellows and masters, &c. . . . The speeches were declaimed by the boys elected to King's College; but they were not all the same as those who had spoken on the Saturday evening. A Mr. Erskine spoke first—an English poem composed for the occasion in honour of their Majesties' visit. It contained some good Tory sentiments. The other speeches were partly Greek, Latin, and English, the latter from Cato and "Paradise Lost;" the passage from Milton was the dialogue between Gabriel and Satan. The young gentleman who supported the character of the heavenly messenger was of a sad aspect, thin, pinched features, and sandy hair. The jokes of the boys were very amusing and characteristic. At the close of each speech the orator bowed to the King; but he commenced without any prefatory obeisance, the reason given was that he should not do anything

to take away from the character he represents till his part is ended. Their action is graceful but formal, and has a sameness necessarily dependent on its artificial acquisition which prevents the manifestation of individual differences. They raise the right arm on minor emphasis, and both arms when a climax occurs. The King testified his pleasure by tapping the arm of his chair and a slight[1] inclination of his head; and he repeatedly turned to Dr. Goodall to note the names of the speakers. At the conclusion of the orations he rose, bowed first to the heads of the College, then to the scholars, and lastly turned again to the visitors and his own suite, who then rose. The lords in waiting then walked backwards before the King till he came to the middle of the open space. There Dr. Goodall announced that, at His Majesty's request, an additional week was granted to the Easter holidays, if the boys did not object. This was received with renewed and deafening cheers, amid which the royal party retired as they had entered.

'I was glad to see that the cheers were again repeated as Dr. Keate passed down the alley, which he returned with some good-humoured nods which seemed to say, "Yes! you young rogues, you may thank me for flogging into you all the good you are ever likely to get in this world."'[1]

[1] The conclusion of this letter had apparently been lost, but was rewritten by Owen himself after 1856.!

Owen then relates his journey back to town and concludes: 'I may just mention having been for the first time, last night, at the House of Lords. Blantyre, being admitted in his own right, gave me an order which Lord Southampton had sent him. I heard the Duke of Wellington, Earl Grey, the Chancellor (Brougham), Duke of Sussex, Duke of Buckingham, Lord Eldon, and a few others speak, and saw some of the "forms" of the "House." I shall now settle down with goodwill to my usual occupations, which, believe me, I would not exchange for the duties of the Premier. I did not envy his or the Chancellor's compulsory attendance for a long and tedious sitting in a close and over-heated apartment.'

Early in 1834 Owen was appointed to the newly established chair of Comparative Anatomy at St. Bartholomew's Hospital. Here he numbered amongst his pupils Rymer Jones, Arthur Farre, and William (afterwards Sir William) White Cooper, all of whom became his intimate friends.

In the same year Owen was elected F.R.S. The original certificate stands as follows:—

'Richard Owen, Esq., Assistant Conservator in the Museum of the Royal College of Surgeons —a gentleman intimately acquainted with Physiology, Comparative Anatomy, and the various branches of Natural History, author of a paper on

the "Ornithorhynchus paradoxus," printed in the "Philosophical Transactions," and of another on the "Generation of Marsupial Animals" recently read before the Society—being desirous of becoming a Fellow of the Royal Society, We whose names are underwritten do from our personal knowledge recommend him as highly deserving of that honour, and likely to prove a valuable and useful member.

J. Bostock.
William Blizard.
B. C. Brodie.
Joseph Henry Green.
Edward Stanley.
M. I. Brunel.
John Edw. Gray.
Ja. Clark.
Jas. Clark Ross.
T. J. Pettigrew.
W. Spence.
Marshall Hall.
A. Copland Hutchinson.
W. J. Broderip.
W. H. Sykes.
T. Copeland.
Thos. Phillipps.
William Clift.
J. McGrigor.
J. Hodgson.
Joseph Sabine.
Benj. Travers.
Wm. Kirby.
N. A. Vigors.
R. H. Solly.'

'*May 15th*, 1834.—A certificate was presented in favour of Richard Owen, and was signed by "B. C. Brodie, Joseph Henry Green, Edw. Stanley, William Clift, M. I. Brunel, J. McGrigor, John Edw. Gray."'

'*December 18th*, 1834.—Sir Benjamin Collins Brodie, Bart., Vice-President, in the chair. Richard Owen elected F.R.S.'

'*January* 15, 1835.—John Wm. Lubbock, Esq., V.P. and Treasurer, in the chair. Richard Owen was admitted into the Society—and signed the Charter Book.'

In October 1834 a paper was read at the 'Académie des Sciences' entitled 'Deux Mémoires au sujet des Monotrèmes,' by Geoffroy St.-Hilaire. In the first article he speaks thus of Owen: 'Il est fort soigneux d'aller aux informations auprès de ceux de ses compatriotes qui arrivent journellement de l'Australie: il possède, par conséquent, beaucoup de précieux documents, et sait leur donner souvent toute la valeur scientifique qui leur appartient: si bien que je reste convaincu qu'à lui demeurera en définitive l'honneur d'amener une aussi curieuse question à sa dernière forme et solution' (p. 20). In another place, in mentioning Owen, he speaks of the 'caractère loyal et conscientieux qui le caractérise' (p. 6).

On the vexed question of the egg-bearing of the Duck-billed Platypus (Ornithorhynchus), Owen writes thus to Geoffroy, after acknowledging some pamphlets he had received from him on this subject:—

'Je vous remettrais la première ornithorhynque femelle intacte qui tombe dans mes mains; toutes celles que je possède jusqu'à présent sont plus ou moins mutilées dans la partie qui vous intéresse le plus. . . . La femelle de laquelle M.

Pentland vous a parlé n'appartient pas au Musée des Chirurgiens ; on la conserve dans un Musée Militaire à Chatham, d'où un de mes amis m'a écrit sur le sujet, disant qu'elle avait des œufs dans l'oviductus. J'ai disséqué cette femelle et j'ai trouvé trois ovules dans l'ovaire gauche semblables à tous égards à celles représentées dans ma planche xvi., mais pas une seule dans l'oviductus ou ad uterum. J'ai depuis reçu deux œufs à coque calcaire de la Nouvelle-Galles du Sud, donnés par les natives pour les œufs de l'ornithorhynque. Je les ai cassé ; l'un conténait le fœtus d'un ophidien! l'autre le fœtus d'un lézard! Je n'ai pu obtenir rien de positif sur les produits de génération des Monotrèmes ; mais j'ai toujours cru que leur génération serait semblable à celles des vipères et des salamandres—c'est-à-dire, ovovivipare.'

This year Owen again spent his holiday in the Lake District, after visiting his mother and sisters at Lancaster. Writing to Miss Clift from Buttermere on August 7, 1834, he says: 'In the midst of what I have always considered the wildest and the simplest scenery of this romantic country I sit down to give you a short and imperfect account of my excursion rambles. Independently of other feelings, which have daily, I might say with truth almost hourly, prompted me to write to you, the knowledge of your love of the beauties of Nature and your sympathy

with my own feelings and enjoyment of them gives me double pleasure in attempting to communicate to you what I can scarcely find words to express. . . . I have no water colours with me, or I would have painted a group [of flowers] which I amused myself with composing. . . . I have attempted some sketches with the camera lucida, which answers the purpose of giving a correct outline very well.' He describes his tour to Ambleside, Rosthwaite, the Langdales, and Red Pike, and, referring to his endeavour to find a safe descent, says: '*Facilis descensus* is Virgil's expression under circumstances somewhat analogous, but he was evidently no Highlander.' Describing a somewhat difficult descent, he writes: 'I confess at one time the sight of a carrion crow winging its way far below me led me to a serious speculation on the probabilities of his having a meal upon the carcass of an unfortunate anatomist.' He refers again to the wish that Miss Clift shall visit Lancaster, as his 'mother is particularly anxious to see you; she is visibly aged, but in good health.'

On his journey back to London, Owen visited Derby, and from there writes to Clift, August 21, 1834: 'I have visited the Infirmary, and seen their plan of mending broken legs without splints, and afterwards went to the china factory and saw the process of the reparation of broken plates. Jones and I travelled from Liverpool to Man-

chester by the railroad; and I was as much astonished at the process as before. It will be a sin unpardonable if you do not adventure your body in the 1st class carriages (which be sure to ask for, or they will put you in the 2nd.)'

The following extracts are made from Miss Clift's diary for 1834:—

'*Friday, November* 28.—R. O. and I, with my father and mother, went to the Adelphi Theatre, where we were much pleased with all four pieces, but particularly with the first, "Agnes de Vere." Mrs. Yates' acting is beyond praise. The second, "My First Night; or, the Ghost of Myself," John Reeve the ghost!! The last a funny little farce, "The Christening," by Buckstone, who played the Father of the baby, Mrs. Keeley the Godmother. From the excessive heat, owing to an overcrowded audience, no less than three young men literally "went into fits" in the pit. R. O. very kindly made his way through the crowd and assisted the last two. Yates stopped the scene when the one near the front of the pit was taken ill, and procured and handed over a glass of water.'

'*December* 18.—Made a drawing of a shark's jaw at the request of Mr. Owen for Dr. Buckland's forthcoming work.'

'19*th.*—My Father dined with the club of the Royal Society and was at the meeting to give his vote to R. O., who dined with us. When my

Father came home we all drank congratulations to R. O., now a Fellow.'

Owen published several memoirs this year, of which the following may be mentioned as important:—'A Description of the Ova of "Ornithorhynchus paradoxus" ("Phil. Trans."); 'A Paper on the Dislocation of the Tail at a certain Point observable in the Skeletons of many Ichthyosauria.' This latter paper, in which he suggested that this dislocation signified the possession of a heavy caudal fin, affords an example of Professor Owen's extraordinary powers of deduction. It was only in 1892, a short time before his death, that his suggestion was proved to be correct. In that year Dr. Everhard Fraas discovered in the lias of Würtemberg the skeleton of an ichthyosaur in which the outlines of the fleshy parts were impressed on the stone. This specimen also showed that the caudal fin was really larger than Owen had ventured to imagine.[2]

At the time when these papers were written, Owen was still continuing his work as Professor of Comparative Anatomy at St. Bartholomew's. In September 1834 he received the following letter from Sir Anthony Carlisle. The letter is quoted here in full, as it illustrates the difficulties under which Owen worked in his earlier years,

[2] E. Fraas, 'Ueber einen neuen Fund von Ichthyosaurus in Würtemberg' (*Neues Jahrbuch für Mineralogie*, 1892, vol. 2, p. 87); see also R. Lydekker, *Natural Science*, Sept. 1892, p. 514.

and the fact that he had already felt the narrowness of the field in which he had been placed. It is possible that Carlisle, well knowing the apathy of the reigning faction to the Hunterian Collection, feared that Owen himself would be led away by the enthusiasm of outside teaching from the true purpose of his position. But Owen's energy and powers proved to be such, that no amount of extra work was permitted to interfere with his ordinary routine :—

*Sir Anthony Carlisle to Richard Owen*

September 10, 1834.

'My dear Sir,—I wish you to understand that I feel the greatest regard for you personally and professionally, and I should lament any incident which might lead you to doubt of my steadiness, but we have severally many public charges which should not be interrupted by misapprehension on either side. You know how deeply I regret the shameful delays in making Mr. Hunter's Works public, and how basely one of my efforts to awaken the slumbers of the profession by giving my last Hunterian Oration was treated, not merely by the active malevolence of ignorant savages, but by the neglect of the whole College. I knew that your fine specimen of physiological anatomy would be waste-paper in England, and so will every similar effort until the great scheme of scientific zootomy of Mr. Hunter is fully

explained. This never could be done by *local* exhibition and by *local* lecturings. The press and the engraver were always the proper modes of showing and diffusing the system of medical science contained in the College Museum; and to that object *we* are bound to devote ourselves while the Council have the *will* and the *means* to publish an illustrated catalogue. I was sorry under these strong impressions to read your name as a Lecturer on Comparative Anatomy at St. Bartholomew's Hospital, first because I know that it will endanger your powerful position in the College, for, whether those lectures may be received with indifference or applause, the consequences must be unpleasant. In the multitude of *lecturings* which surgical and medical students are required to attend, few students will have time and still fewer the desire to study philosophical anatomy. But if your well-deserved reputation should promise you a *remunerative* class, and give public renown to the hospital where those lectures are delivered, what will the rival hospital schools say? They will appeal to the College; they will quote the express prohibition in our bye-laws, and place us all in painful circumstances. I think that at no distant time the London University and King's College will become the great schools for elementary medical instruction, and the hospitals remain the scenes of practical information. Then, indeed, physio-

logical anatomy might be taught in those colleges, and our illustrated catalogues, aided by special show-days for those selects of the profession, be becomingly appointed in our museum, under such able demonstrators as yourself. I look forward to a different arrangement of the College lectures, and a far more appropriate selection of subjects after we have discharged the long-neglected obligations imposed upon us by the nation (the Catalogues of the Hunterian Collections), and much of this depends on you, to whom both present and future glory must be given.

'Come to me as often as you please, with openness and confidence, and I will use my best endeavours to promote your welfare in the College and out of it.

'My dear Sir, truly yours,

'AN. CARLISLE.'

Richard Owen, Esq.

Owen evidently felt that he was able to fulfil the duties which belonged to both institutions, and when his Catalogue of Hunterian Preparations appeared it certainly justified his position.

We have a glimpse of him as Professor of Comparative Anatomy at St. Bartholomew's in an account given by Miss Clift in her diary for May 1835 of a prize day at the hospital.

'*May* 13.—Went with R. O. and my mother to St. Bartholomew's Hospital to see the prizes

given away to the students. The Professor of each different subject made a speech (long or short as the case might be) in introducing their prize-man to the President. R. O., as Professor of Comparative Anatomy, said a few words to the point in bringing forward the young man who gained the prize on that subject.' There is a footnote here in Professor Owen's handwriting stating the man to be William White Cooper.

About this time Owen gave up his lodgings in Symond's Inn, and moved to apartments provided for his use at the College of Surgeons, which he was now making ready to receive his future wife in two months' time. 'On leaving the hospital,' Miss Clift continues, 'R. O. took us to his house, where he regaled us with ices and claret and cakes. We visited every part of the house, and looked into the new part of the museum. I was agreeably surprised at the size of the rooms and the comfort of the kitchens, but the upstairs is most inconvenient. It proved a wet afternoon, so we came home in a coach from THE HOUSE, leaving R. O. to go to the great dinner of the Governors.'

It is not to be wondered at that his mother writes about this time to 'R. O.:' 'You are daily in my thoughts, as from your letters I cannot help thinking that you are about to be married, and I hope happily so; from all that I have heard of the young lady, there is, I think, every prospect of it.

You will observe how ill this is written, owing to the unsteadiness in my right hand, but we must submit to the approach of age ; therefore, my dear Richard must not expect many letters from me. Your sisters will write by every opportunity, and I hope you will do the same.' On July 20, 1835, his birthday, the event took place to which he had so long looked forward, his marriage with Miss Clift.[3] It was a very quiet wedding, and is thus described in the diary :—'July 20.—Richard Owen and I, my father and Harriet Sheppard, were in the new St. Pancras Church, Euston Square, by half-past eight o'clock. The Rev. Mr. Laing came immediately after we got into the vestry, and, Caroline Clift having been lost on the road, Mrs. Richard Owen returned to breakfast at No. 1 Euston Grove[4]; after which my husband, my mother, and I set off to Oxford. On the way we left my mother to return to town by the same post chariot which took us, as we changed it there for another. We then posted on till we arrived at Oxford in time for a late dinner. We left London at 10.30 A.M.'

Later in this year an important microscopic discovery was made by Owen—although at first it seemed merely a curiosity of science. Mr. Wormald,

[3] The marriage certificate states that Richard Owen, of the parish of St. Clement Danes, was married to Caroline Clift, of the parish of St. Pancras, in the presence of William Clift and Harriet Sheppard.

[4] The residence at that time of Mr. and Mrs. Clift.

of St. Bartholomew's Hospital, sent him a piece of human muscle accompanied by the following letter :—

'Dear Owen,—I send you some sort of organised beings, as I believe, which occupy the muscles of a subject now under dissection at St. B. H., and as I know you are a keen hand for parasitical things from crabs downwards, I send the enclosed for your inspection.

'Ever yours sincerely,
'THO. WORMALD.'

Upon examining this piece of muscle, Owen discovered a new entozoon, the *Trichina spiralis*. This minute worm 'is not limited in its distribution to the muscles of man,' but when found in the human body not unfrequently causes death. It is well known as producing the epidemic trichinosis, which makes its appearance chiefly in Germany, or in such places where diseased pork or partially cooked ham are consumed. In order to prosecute these discoveries, bits of decaying muscle were often brought into the house for examination, and on November 18 of this year Mrs. Owen describes an evening's amusement :— 'Richard spent the evening in examining some of the minute worms found in the muscles of a man. I looked at one or two through the microscope and saw [here there is a little sketch of the trichina as it appeared under the micro-

scope, and the cysts] one cut open. I could not get over the smell of the decaying piece of muscle for hours. R. only laughed, and assured me that in comparison to what surgeons had often to meddle with, it was quite sweet!'

The diaries of Mrs. Owen are now kept almost without a break up to 1873, the year of her death. In many places Professor Owen has corrected or annotated passages himself. The following extracts are taken from the diary kept in 1836:—

'*January* 5.—Richard went to Bruton Street[5] to cut up an ostrich. He is now engaged in writing on the "paper nautilus," and there is a lovely little specimen in spirits on the table.'

'26*th.*—R. went to a committee meeting at Bruton Street about a museum. They are inclined to take John Hunter's house in Leicester Square for that purpose.'

'*February* 16.—R. again all day at Bruton Street. Home at 10 P.M. After supper he

[5] The Zoological Society had a museum at 33 Bruton Street from July 1826 to the end of 1836, when the specimens were removed to 28 Leicester Square, formerly the residence of John Hunter. The museum existed there until the end of 1841, when it was removed to Dufours Place, while the offices of the society were removed to 57 Pall Mall, and continued there until the end of 1843. The museum specimens were removed to the Gardens, Regent's Park, in December 1843 and January 1844; and the offices to 11 Hanover Square, where they have since remained. The meetings for scientific business were held at Bruton Street, Leicester Square, and 57 Pall Mall, during the several periods above mentioned.—Dr. P. L. Sclater, *in litt.*

began to read "Eugene Aram" and went on till 2 o'clock.'

'*March* 13.—Sunday to St. Dunstan's. As soon as we came back from church, R. set off to meet Sir Anthony[6] at the Zoo Gardens. When he came back he told us that the poor little chimpanzee was very ill—not expected to live.'

'15*th.*—R. dined with the Linnæan Club and went to the meeting in the evening. This was his presentation, and Mr. Bennett presented him. Mr. Bell was to have done so, but he could not come. The Duke of Somerset was president.'

'20*th.*—To-day R. and I set off to the Zoological Gardens. We had only been there a few minutes when the Duchess of Kent and the Princess Victoria came in. The gentleman who gave his arm to the Princess was an elder brother of the King of the Netherlands and brother to the Duchess of Kent. His eldest son supported his aunt. The Duchess looked very well, and as amiable as usual. She had on an exquisite satin dress, a very dark ground thickly strewed with gorgeous flowers, and a canary coloured bonnet with roses. The Princess had on a delicate sort of salmon-coloured checked silk, with a cape, and a sky-blue satin bonnet. She is very fair, and looks clever and unaffected. They walked all over the gardens, Mr. Bennett doing

[6] Sir Anthony Carlisle.

the honours in a very pleasing manner. I was thankful to see the other visitors did not press the royal party, and it was very pleasant to see the good feeling which welcomed them on every side. They took great pains to visit and see everything worth seeing, and seemed to greatly enjoy the actions of the seal diving for fish. They afterwards went into the room where the poor little chimpanzee is lying so ill. We walked back rather tired, and R. wrote downstairs till 1 o'clock. We all set off (my father and mother and myself) soon after 5 to Covent Garden Theatre, but poor R. had to return home after escorting us, as he could not spare the time. Charles Kemble's benefit made a full house and the entertainment was excellent. Miss Faucit appeared for the first time as Lady Townly ("Provoked Husband"). Though evidently very nervous at the opening, she soon recovered her self-possession and did herself justice. She never approached coarseness or vulgarity in her retorts and petulant upbraidings. Miss Taylor, as Miss Jenny, received a broad hint from the audience for over-acting the romp. She was fairly hissed out of a game of marbles with Mr. Vale, who played the bumpkin brother. Charles Kemble, as Lord Townly, was all himself, needless to say.'

'*Sunday, 27th.*—R. and I got up in good time, and according to agreement went by 'bus to Trinity Chapel, Cannon Street Road. We sat on

each side of the organist in the organ loft, and it was quite a treat to hear him.'

'28*th*.—Poor little chimpanzee dead. R. went to see the "opening scene" in Bruton Street; 30 gentlemen at least present.'

In April, Owen was appointed Hunterian Professor at the Royal College of Surgeons. To the last days of his life he constantly referred to the gratification which this appointment gave him. A draft of the letter which he sent to the Council accepting the chair has been preserved amongst his papers, and the hope which he entertained in his letter of May 3, 1832, now became a reality.

Coll. Surg.: April 30, 1836.

'Sir,—I had the honour to receive your letter informing me of my election as Hunterian Professor by the Council of the Royal College of Surgeons, and I beg you will express to the Council my deep sense of this additional mark of their favourable sentiment towards me, and the entire willingness with which I accept that highly responsible charge.

'I cannot, nor shall I ever be willing to forget how much I owe my present presumed eligibility to illustrate by public lectures the labours of Hunter, to the favourable position in which I am placed in being entrusted by the Council of the College with the partial charge of a collection, originally most extensive, in preparations of Com-

parative Anatomy, and since become unrivalled through the care of a wise and liberal administration.

'The subsequent confidence reposed in me by the Council in reference to the preparation of the descriptive catalogue of the Physiological Department of the Collection confided to me demands my warmest acknowledgments: their favourable reception and approval of that work have always formed my most grateful recompense, and have given the strongest stimulus to increased exertions towards its completion in a manner as nearly as possible equal' [the draft ceases here].

Mrs. Owen's diary then continues:—

'*April* 21.—Richard[7] went to the Hon. Artillery Co. for ball practice.'

'28*th.*—My Father and R. at the great Zoo Meeting at the Adelaide Gallery to vote for the new Council. A printed letter on the subject came last night from the "malcontents." After tea to the Royal Institution. Mr. Faraday on manufacture of black-lead pencils.'

'*May* 4.—Richard off to a Zoo Council. Back about 8.30. Then wrote to Lord Derby to

[7] Owen joined the H.A.C. in 1834. He was informed in April of that year that his admission would be 'balloted for at a Court of Assistants of the said Company to be held at the Armoury House, in the Artillery Ground, on Thursday, April 10, 1834, at 7 o'clock in the afternoon [*sic*]. The fees of admission and the subscription to be paid at the time of admission are 6*l.* 6*s.*' He resigned in July 1842.

refuse the office of Vice-President which his lordship had endeavoured to press upon him to-day. My Father staid very late to copy R.'s letter to our President on the subject of future arrangements for the museum, &c.'

'*7th.*—The Trustees met here to-day. Sir Astley Cooper offered to introduce R. to the Duke of Somerset and a Bishop, and was much surprised to find them old acquaintances. Coming home from the Stanleys this evening, we were lighted home by our watchman, to whom R. gave some whisky, a tumblerful, which he swallowed at one gulp. R. assured me there was nothing to be uneasy about, as he was quite case-hardened.'

'*8th* (Sunday).—R. went to church, but I got up late, and went to the Zoo Gardens. The poor lion lying in straw and almost dead. A new kangaroo, which hops about on high places like a great rat—the tail also somewhat similar in appearance, and a light-coloured band round its face like whiskers. R. joined me in the lion-room. Lord Derby, in the crowd, shook his fist at R. for refusing the Vice-Presidentship.'

'*11th.*—With R. to St. Bartholomew's to see the prizes given. Mr. Paget,[8] as last year, was the chief prize-taker.'

'*12th.*—In the evening R. went to the Abernethy Club dinner. He said he should have to give a dozen of champagne for having got married!'

[8] Sir James Paget.

'15*th*.—With R. to the Gardens. The poor lion had a board put up in front of his den to keep him from being more annoyed than could be helped by the visitors. The seal dead. The Arctic puppies very amusing; we fed them and the mother with bones and bread.'

'18*th*.—Dr. Jacobson brought R. a diploma from Berlin, making him a Fellow of the Royal Scientific Academy of Prussia. It was made out in March 1836, and sent to R. by Dr. Lichtenstein.'

'*July* 22 (Sunday).—To St. Dunstan's, and then to the Gardens. The little bear very comical—most genteel and elegant in munching and clearing out his orange. The lion still alive, and both elephants out. We both came back as usual, tired and delighted.'

'25*th*.—A lovely bright morning; up before 3 A.M. R. and I started at 4, and after waiting about near the Gardens till about 5 saw the most lovely procession imaginable. The four graceful, bounding, playful giraffes, attended by M. Thiebaut and four Africans in native costume. Two policemen were there to clear the road, but in the neighbourhood of the Gardens there was nothing to clear except an early market cart or two. The procession had walked from Blackwall—8 miles—and passed through Gloucester Gate to the Gardens. When the giraffes got on to that part of the road in which the trees are on both sides,

they could scarcely be held in by the attendants. One animal got so excited that M. Thiebaut called out, 'Laissez aller,' &c., and they allowed the pretty creature to bite some of the young shoots off the tree. They were delighted apparently to get into the Gardens, and were soon safe and unhaltered in the elephants' new house. One of the attendants had his cheeks gashed for ornament —three cuts on each side. We then visited the sick lion—better, but not out of danger. The giraffes had to have a light at night, as they would not rest quietly without it. M. Thiebaut very tired. He said he had not had his boots off for two days. We stayed in the Gardens till 7, and then went home to breakfast.'

'28*th*.—R. and I at half-past 1 to the Artillery Ground. The Artillery Company went on with their evolutions till half-past 5, and must have been pretty well tired, especially those who worked the big gun. Richard came to us in his regimentals when it was all over, and we all admired him for his soldier-like appearance. As I walked home with my father by Chiswell and Barbican, we met a crowd of men and boys running after, or by the side of, a large curly black dog. I was just saying to my father, "I am sure that dog is not mad," and was beginning to feel indignant with the people for chasing it, when a fire-engine came tearing after them loaded with the firemen in helmets. My father then said that

it was the celebrated dog that attends nearly all the fires in London. He does not attach himself, it seems, to any particular body of firemen, but is to be found sometimes with one company and sometimes with another.

'R. came home soon after we did, and brought his regimentals with him for me to clean the silver braid.

'*June* 6.—This morning at 7 o'clock Dr. Milne Edwards came by appointment to see R., and they both examined things by the microscope till breakfast-time. Then young Scharf brought the prints of the giraffes.

'In the evening Mr. Hills, the water-colour painter, looked in and we had some music, and did not get to bed till nearly four. R. told me to-day the names of the new giraffes. The one with a talisman round his neck is called Selim (fortunate). The others are called Mabrouk (favourite), Guib-allah (God's gift), and Zaida (happy).'

'*July* 10.—My father and R. in at Mr. Belfour's about the Secretaryship. As R. came home sooner than I expected, we went off as usual to the Gardens. The elephant was most ridiculous. One of the giraffes came out of the house while the elephant was on that side of the paddock and simply terrified the great coward by stretching out his long neck to stare at him. The elephant was so frightened he got into

the water, which he generally cannot bear to enter.'

'21*st.*—Engaged all day in drawing a wombat's brain for R. When R. came in he said it was all wrong, so I must do it all over again. R. drew a rough sketch of it for me.'

'22*nd.*—N.B.—"MR. OWEN" put up on our door-plate to-day. Looks most imposing.'

'26*th.*—Finished the wombat's brain. R. not quite satisfied. Wants another portion added to it, so washed out part and left it to dry.'

'28*th.*—Went to Westminster Abbey with R., who was delighted with Purcell's music. As R. had a few moments to spare, we took a look round (for which we had to pay 1*s.* 6*d.* each). R. was very amusing about a great tomb of fine design and size, with a man in long robes and a cap on it. It had an inscription over it to say that Owen, son of Richard and Maria Owen, was interred there. R. declared it must be an ancestor!'

'*August* 9.—To Broadwood's to choose a piano. R. tried one or two but did not decide upon anything. They are to send word when more are finished. Music in the evening. Overture to "Don Giovanni" arranged as a quartette. Got through it very well. A very late supper and all "very merry," as Pepys would say.'

'*October* 23.—In the morning R. drew a diagram of octopus. Afterwards to the Gardens. The giraffes very well, and their new house

getting on. A new window in the squirrel-room —a great improvement. It was put in at R.'s suggestion.

'R. left me to superintend the drawing of a new species of ourang-outang from Borneo. After dinner he began an interesting paper on the subject and finished it before he went to bed. Only the skull has been preserved.'

We find from a letter from Lyell to Owen at this time that the friendship which existed between them had evidently only just begun.

*Charles Lyell to Richard Owen*

16 Hart Street: October 26, 1836.

'My dear Sir,—Mrs. Lyell and I expect a few friends here on Saturday next, 29th, to an early tea party at eight o'clock, and it will give us great pleasure if you can join it.

'Among others you will meet Mr. Charles Darwin, whom I believe you have seen, just returned from South America, where he has laboured for zoologists as well as for hammer-bearers. I have also asked your friend Broderip.

'Yours faithfully,

'CHARLES LYELL.'

'*November* 1.—R. translating from the German all the evening. He made up his finished paper on marsupial brains last night, and sent it in this morning.'

'*4th.*—Before the Court of Examiners assembled this evening, R. and I had a look at the new rooms lighted up. The council-room looked very well, except the doors and frames, which were heavy and tasteless. The new chandelier and the bronze lamps on the staircase and in the hall very fine.'

'*5th.*—R. came back in a hurry to dress for dinner at Mr. Murchison's. Mr. Babbage and Mr. Darwin there.'

'*November* 17.—Last night a kangaroo (dead) came to R. from the Zoo. This morning he dissected some entozoa from the kangaroo. By ingeniously opening these thread-like worms, he has succeeded in making some beautiful preparations, showing their almost invisible insides. R. in the evening to Mr. Stanley's.'

'*27th.*—R. read his introductory lecture to Mr. Langshaw. They were such a time in the Great Museum (two hours and half), for the lecture proved too long for the time allowed, so it will have to be cut down. It seems a great pity!

'In the evening we read "Hunterian" proofs till a very late hour, nearly three.'

'*30th.*—R. received the rich present of Cuvier's works, presented to him by the Cuvier family. The collection of plates alone a valuable gift. A most friendly and gratifying letter from F. Cuvier, and also from G. F. Cuvier, his son.'

'*December* 3.—Bennett with R. in the museum

nearly all day looking over specimens ; he and R. are at present so deeply interested in whales, they can talk of nothing else. After dinner they sat over their paper instead of their wine.'

'9*th*.—This morning Mr. Gould brought some coloured lithographs of birds' heads (New South Wales), the work to be out directly. Our pet tortoise keeps raising himself by the fore feet on to the front of the fender, and uses every possible exertion to get over it to be nearer the fire. He ate a little of the cabbage-leaf to-day. R. gave Dr. Farre a certificate of lecture attendance. Read "Hunterian" proofs with R. till my eyes ached.'

'13*th*.—Dr. Buckland called to-day, but R. was in the library, with doors locked, and so could not be reached, so Dr. B. left a box of fossils.'

'25*th*. (Christmas Day).—R. and I went to church in good time. A very pleasant evening, with readings from "Boz," playing and singing.'

'28*th*.—I made two ink outlines of shark's teeth, and to-night translated from the German for R.; after that I read aloud from Cuvier whilst R. compared the editions. Wrapped up the tortoise in flannel before I went to bed, and put it in the front cellar.'

# CHAPTER IV

## 1837-38

Hunterian Professor and Professor of Anatomy and Physiology in the College of Surgeons, 1837—His Courses of Lectures—Birth of his Son, October 6, 1837—the British Association at Newcastle, 1838—Visit to Germany, 1838—Death of his Mother, November 1838.

On the retirement of Sir Charles Bell from the Professorship of Anatomy and Physiology in the College of Surgeons, in the early part of 1837, Owen was elected to the vacant chair. When the Government purchased the Hunterian Museum and transferred it to the College, a stipulation was made that its contents should be illustrated by a course of twenty-four lectures delivered annually. This course had previously been divided between the College Professors of Anatomy and Surgery, each of whom devoted their twelve lectures to some special subject in which they had attained eminence, but which had no special reference to the Hunterian Collections. These twenty-four annual lectures Owen, as Hunterian Professor, undertook to deliver, as illustrative of Hunter's Collections, and without ever repeating the same

subject continued to deliver them up to 1855. He further adopted the practice of printing a synopsis of each course, and a glance at a complete series of these summaries gives us a means of estimating the extent of scientific information communicated by Owen to the students during his Professorship.

In this year (1837) he also edited 'Hunter's Animal Economy.' He sent a copy of this work to Whewell, his old schoolfellow and fellow-townsman (who afterwards became the well-known Master of Trinity), and received the following reply :—

'I was much pleased to receive your letter and to find that you are about to publish Hunter's works. . . . . I have always been afraid of Physiology as a branch of my undertaking. I do not see how I can avoid taking some notice of it when I complete my Philosophy, for it is the subject of the greatest promise and the deepest interest of the whole of science ; but how I am to arrange the principles of four great writers and penetrate their true character I do not know. The mere task of reading them is formidable. . . .

Whewell then adds this protest in a postscript :—

'By the way, it is a great shame that you, an old fellow-townsman, persist in making my name more formidable than it really is by writing it

Whew hell. I have trouble enough with it at best : so I hope you will not add to it a new *alias*.'

Owen now began gradually to relinquish his medical practice, in order to devote the whole of his time to scientific research. Meanwhile, he never neglected the opportunities which occurred of dissecting the animals which died at the Zoological Society's Gardens ; and these opportunities were naturally of frequent occurrence at a time when the habits and mode of life of the animals were but imperfectly understood. Constant reference is made in the diaries to these dissections. The carcases of such animals as Owen could obtain from menageries and other sources he not unfrequently dissected at home. Those dying at the Zoological Gardens were dissected there. On January 29 we read in his wife's journal :—

'To-day Richard cut up the giraffe which died at the Zoological Gardens. Afterwards he went to the Royal Institution to dissect a snake.

'They have now got the skeleton of the hippopotamus up in the museum.'

The diary is continued :—

'*February* 3.—Dr. Buckland called early as expected, and stayed some time looking at fossils. I have been astonished in looking over the few I have seen of the Hunterian fossils. The collection is quite wonderful. R. told me that Mr. Hunter, living at a time when geology was hardly known

at all, had the numerous valuable specimens sent to him as the only person generally known at the time as at all interested in the subject. They are now in the museum cubes, and it is the reopening of the museum which has occasioned R. to bring them out of their hiding-places. He thinks the collection will considerably surprise the scientific world when it is once more available. To-day R. got the first volume of "Hunter" by Palmer.'[1]

'*4th.*—The museum in good order for the visit of the Trustees. The fossils and shells which R. has put in the flat cases have a very fine effect, and the way in which he has contrived the supports in the side cases is quite successful. They interfere as little as can be with the skeletons. The Trustees greatly admired the arrangements.'

'*March* 22.—R. went out late to the Geological Society; a dismal, cold, and snowy evening. He has been writing a paper on the Toxodon, brought by Mr. Darwin, to be read there, but not to-night.'

'*April* 11.—Dr. A. Farre and Mr. Darwin here this afternoon. After tea muscular fibre and microscope in the drawing-room.'

'19*th.*—R. wrote the latter part of his third lecture and read it to me. He received to-day as a present from Agassiz his plates of fossil fish.'

[1] *The Works of John Hunter*, by James F. Palmer. 2 vols. 8vo., London, 1835.

'*May* 1.—The day before R.'s first lecture![2] At 10 P.M. he read it over to me, and it lasted till 11.30.—too long.'

'*May* 2.—So busy all the morning, had hardly time to be nervous, luckily for me. R. robed in the drawing-room and took some egg and wine before going into the theatre. He then went in and left me. At 5 o'clock a great noise of clapping made me jump, for I timed the lecture to last a quarter of an hour longer, but R., it seems, cut it short rather than tire Sir Astley Cooper too much. All went off as well as even I could wish. The theatre crammed, and there were many who could not get places. R. was more collected than he or I ever supposed, and gave this awful first lecture almost to his own satisfaction! We sat down a large party to dinner. Mr. Langshaw and R. afterwards played two of Corelli's sonatas.'

'*May* 4.—R. up till two this morning writing. But he has done capitally, for his first lecture is now, as I earnestly begged him to do, spread into the second, and with a little addition forms a most interesting one, particularly to those whose reading has not extended very far—even to the learned, they cannot but fail to excite attention. R. read to me what he had left out of the first lecture with last night's additions. But as this did not fill up

[2] The subject of this course of lectures was the microscopical structure and nature of the teeth.

an hour, he wrote some more, and the whole makes a good lecture.'

'*May* 11.—R.'s second lecture. He ran up to the drawing-room with his gown on before lecture, while looking over his paper. R. called away after lecture to see Sir Astley Cooper, who was in the museum, and who came to talk about the lectures. He expressed himself as being delighted with them, but said he thought a few diagrams would look well.'

'*May* 16.—R.'s third lecture. The first given entirely without notes. He made a little apology on that score, and in consequence had two rounds of applause—which he was sorry for; but I think he did right, being so young a lecturer and looking so much younger than he really is. It could hardly be put down to the affectation of modesty in an experienced lecturer, sure of his own powers and of the admiration of the audience. I went with my mother and father to look at the diagrams in the theatre afterwards.'

As soon as his third lecture had been delivered Owen sat down to write to his mother. After telling her that the audience had increased rather than diminished since his first lecture, 'which,' he says, 'I take to be a fair guarantee of my having so far afforded satisfaction to the College in my new capacity,' he continues: 'The President (Sir A. Cooper) has done me the honour to attend each day, and has taken notes; but that I take to be

an act of his good-nature, and meant as an encouragment to the young beginner. It is a formal, and therefore somewhat awful affair, our lecture. First, the members and students assemble in the gallery and body of the theatre; then, as the clock strikes four, the honorary visitors who have previously congregated with the council in the council-room are ushered down, the President, in his robes, being preceded by the mace, which is reverently deposited on the lecture-table by the beadle, when, lastly, walks in the Professor, and then, when the clock strikes five, your obedient and affectionate son makes his bow and exit, with a much lighter heart than when he entered.

'I am truly thankful for the health and strength which has thus far supported me through a severe trial. My colleague, an old experienced lecturer, found it so; and most have acknowledged the same. I trust to complete the course, which lasts till the end of June, without greatly disappointing the expectations of those who have (earlier than I would have myself wished it) placed me in this sphere.

'Pearson Langshaw was, I believe, the only townsman who witnessed my *début*. . . .

Dr. Buckland was a constant attendant at these lectures. 'While he is at R.'s lecture,' Mrs. Owen writes, 'Mrs. Buckland comes in to talk with me.'

The excitement of these lectures used to have

a corresponding reaction upon Owen, for he was at first much more nervous than he appeared to be. After one of his early lectures (May 30) his wife writes: 'R. very queer on coming back from lecture; if he is not better by next lecture I shall try and get it postponed.' On June 8 she says: 'R. was scarcely well enough to lecture to-day owing to a chill which he got last time by standing in the theatre after his lecture. He gets very hot while he is speaking, and then is upset by the after-chill.' However, as Owen became more accustomed to lecturing, his nervousness to a great extent wore off. Soon afterwards Lyell wrote to congratulate him upon his delivery, saying that his voice was so clear and distinct that he could be plainly heard without effort by everyone in the room. 'I always picked out the person whom I saw was in the worst place in the room for hearing,' Owen used to say, 'and then I talked *at* him.'

On June 9 an account is given in the diary of one of Faraday's lectures: 'To the Royal Institution to hear Faraday lecture. Went with my father, as R. was not well enough to go. In the ante-room I had some conversation with Mr. F., who said this lecture was the last of his course for the season. It was chiefly on arrows and weapons. Faraday showed us the various flints used in different times and different countries for arrow-heads, knives, &c. It was most interesting and amusing,

and of course well delivered. Mr. F. shot or rather blew several small arrows through tubes—and with good aim—at a band-box with a centre mark. The place full, but the heat and draught dreadful.'

'*June* 14.—R. to the Geological Society. It was his introduction as Fellow, and after a very interesting evening with Buckland, Whewell, Sedgwick, Murchison, de la Beche, Stokes, &c., they all adjourned to Lord Cole's to supper. After supper they proceeded to play "high jinks," as immortalised by Sir Walter Scott in "Rob Roy." Mr. Stokes took the chair as King, and was excellent as the arbitrary monarch. Lord Cole could not sing when called upon, nor could his brother, who was "Boots." R. had to sing first, as youngest there, and sang "A Fig for St. Denis of France." The so-called salt and water filled two quart pots. All kind of scientific discourse was prohibited on pain of forfeit, and geological expressions on pain of fighting the champion (Lord Cole's brother) with hammers. Every word or sentence which could be so construed was seized upon. It having turned out that the report of the good King's death was false, his health was warmly drunk.'

'*June* 19.—At dinner a messenger came to tell R. that he was elected as Fullerian Professor of Comparative Anatomy and Physiology to the Royal Institution. His diploma came as well as

the official letter. R. intends to see Sir Benjamin Brodie to-morrow before sending his acknowledgment.'

This Professorship Owen was obliged to decline, as the Council of the College of Surgeons required him to finish his Catalogue before accepting any other office. On June 29 he writes to the 'Managers of the Royal Institution of Great Britain' in these terms :—

'I should have immediately acknowledged, with becoming respect, the most gratifying and honourable mark of your esteem in the appointment which you have been pleased to confer upon me, of the Fullerian Professorship of Physiology at the Royal Institution, had not a paramount engagement in relation to an important work—the Catalogue of the Hunterian Collection, compelled me to defer my communication until I was made aware of the decision of the Council of the College of Surgeons; which, I regret to say, obliges me to forego, until the completion of that work, the acceptance of any other office than that I now hold at the College of Surgeons.'

Towards the end of July 1837, Owen paid a visit to Lancaster, chiefly in order to see his mother. After arriving at his birthplace he wrote a long letter to his wife, descriptive of his journey and of the pleasure he experienced in revisiting his native town. He also gives us a pleasant glimpse of the characteristic way in which he

entered into the researches of younger men in the following passage: 'We were soon joined by Edward Mason. . . . . .' The poor lad hobbled up to us on the parade with great glee. He was anxious to have my opinion whether the pink and the smelt were both the same fish, as Colonel Parker and Sergeant Bond both maintained—the pink being the salmon of the first year, the smelt of the second. Now, Edward had caught a pink with roe in it, and he believes it to be the parr of Yarrell (see that fish in my copy). Edward is to catch specimens of each, and we shall have a glorious evening at the *Lancaster Branch of the Grand Junction Philosophical Society of Natural History*. If we don't beat the military men, or if we leave them a single leg to stand on, poor Edward's crutches will have wheeled most energetically to the Crook of Lune for nothing.'

Owen refers in the same letter to his connection with the Honourable Artillery Company, for he tells his wife to 'let Mr. Cooper have my cap for a pattern. He will also ask for my coat, which please to let him have for his tailor.'

On the 29th he writes to his wife in answer to a letter from her announcing an interesting addition which was shortly to occur in their household. In this letter he refers thus to his mother:—

'My dear mother too I have evidently seen for the last time that she could derive pleasure from my visit. Her mind, though shaken, is still

good—better than her body. . . . . I fear, if she survives—as she prays—to see us both again with the little pledge of affection which reconciles age to the irremediable lot, that the apathy of decay may blunt much of the pleasure which she has derived from my present visit.'

In another letter from Lancaster written to his wife he makes the following somewhat flippant remarks relative to a request sent from the Trustees of the College of Surgeons that he should send them as soon as possible a report concerning his work of the past year :—

'What's the use of trying to collect one's ideas for a report to the Trustees? "One thousand and three moths killed by tobacco-smoke and directions of the Board of Curators. Complaint of some of the sorrowing relatives of said moths that *returns* was used instead of *canaster* (such *infra digs.* would never have taken place in good old Sir William's time, the moths—though they be moths—having been bred and born in the Royal College of Surgeons)." Secondly, "All old corners and out-of-the-way archives diligently and carefully looked through, and the letters out o' date, old catalogues, and other documents, left where they were found." Thirdly, Mr. O. has minutely and casually looked (without spectacles) at all the uncatalogued specimens in spirit, and feels much out of spirits himself when he thinks of the same. Fourthly, that Mrs. C[lift] closed the due proportion of her

windows after the demise of his late most gracious Majesty and Patron of the College, and also wore mourning no less becoming to herself than to the melancholy occasion. Fifthly, Mrs. O.'s kitchen chimney still smokes, contrary to the directions of the *late* Chairman of the Board and the wishes of the Trustees. I cannot get on ; it's no use . . . . And my pen is most obstinate ; and what exceeds the perversity of a steel pen ? '

He returned to the College of Surgeons early in August. From a friendly letter which he received at this time from (Sir) George Grey, written from Teneriffe, he hears that the skull of a guancho (an aboriginal of the Canary Islands) will be sent to him in due course for his museum at the College of Surgeons. Owen's correspondence with Grey was intermittent ; but the latter was apparently always on the look-out for specimens, and nearly every letter from him contains the mention of something he was sending.

At the beginning of September Owen was made a member of the Imperial Academy of Sciences at Moscow.

Amongst other notices in the journal relative to his occupation and amusements during this month may be mentioned the following :—

' Went to hear Mendelssohn's " St. Paul " at the Exeter Hall. The Birmingham people will not allow him to conduct personally. The crowd was enormous, but we got good seats in the

gallery, and saw that it would have been useless to have sought for seats below. A Mr. Bennet, who is a friend of Mendelssohn's, and who is only just turned twenty, sang magnificently. Mendelssohn came to the gallery at the end of Part I. He was immediately recognised by the audience, which stood and shouted. He is young, dark, and quiet.'

On October 6, Professor Owen writes in his wife's diary :—

'At a quarter-past nine William Owen was born.'

The next day there is the entry :—'Papa's joy a little damped by excruciating toothache. Mother and child as well as possible.'

About a month afterwards Mrs. Owen begins the diary again.

'*November* 9.—R. started according to order before 11 A.M. to form a guard to Her Majesty at Guildhall, as a member of the H.A.C.'

'*December* 17.—Was in the drawing-room with the baby when the servant let two French gentlemen in. I told them Mr. Owen would be in directly, and one of them—a rather corpulent, nice-looking man who spoke excellent English—played a long time with baby, and said he had seven of them. R. then came in, and formally introduced us. It was Prince Charles Lucien Bonaparte, nephew to *the* Bonaparte. They all went to the Museum, and when they came back

R. discussed with the Prince the paper His Highness wrote for the Royal Society, and which R. has had to judge. The Prince departed in high good-humour.'

In 1838 Owen wrote a paper, which was the nucleus of his great work on teeth—the 'Odontography.' This paper was entitled: 'On the Structure of Teeth, and the Resemblance of Ivory to Bone, as illustrated by the Microscopical Examination of the Teeth of Men and of various Existing and Extinct Animals.' ('Report of the British Association, 1838.')

Amongst the descriptions which Owen made of the fossil mammalia collected by Darwin in the voyage of the 'Beagle' may be mentioned that of the *Toxodon* skull. The toxodon was a gigantic extinct mammal, presenting great peculiarities and having points in common with various orders of Mammalia.

The following account of the toxodon in the autograph of Charles Darwin was found amongst Owen's papers, from which an extract is now given :—

'The head was found embedded in whitish earthy clay on the banks of a small stream which enters the Rio Negro, and is situated 120 miles to the N.W. of Monte Video. The head had been kept for a short time in a neighbouring farm-house as a curiosity, but when I arrived it was lying in the yard. I bought it for the value

of eighteen-pence.[3] The people informed me that when first discovered, about two years previously, it was quite perfect, but that the boys had since knocked out the teeth and had put it on a post as a mark to throw stones at. They showed me the spot where it had been found after a sudden flood had washed down part of the bank. Several fragments of bone and of an armadillo-like case were lying at the bottom of the almost dry water-course. Some of these I collected, but from the disturbed state of the country the box in which they were packed was delayed on the road, and was afterwards sent direct to England.

'For this reason the temporary marks by which I had distinguished these bones from another set, found at the distance of several leagues, were lost, and I am now unable to say which are the fragments. . . . . This river (Rio Cancaraña) has been celebrated since the time of the Jesuit Falkner for the number of great bones and large fragments of the armadillo-like case found in its bed. The inhabitants told me that they had made gate-posts of some leg bones, and I myself saw two groups *in situ* of the remains of a mastodon projecting from a cliff. But they were in so decayed a state that I could only bring away small portions of a molar tooth.'

From the same collection Owen described the

[3] This skull would probably now fetch many pounds. An entire skeleton is figured in *Natural Science*, 1894, p. 119.

remains of an extinct animal related to the llama. He also described the scelidotherium, which is related to the ant-eaters; and further determined some disputed points in existing accounts of the skeleton of the megatherium—a gigantic extinct sloth about the size of an elephant. We also find from the Diary that Darwin submitted the proofs of the 'Voyage' itself to Owen.

But while occupied in describing fossil remains he varied his occupation by dissecting the mortal remains of a rhinoceros which had recently died at Wombwell's Menagerie. This he looked upon as a great prize, as a rhinoceros then—dead or living—was a rarity in England. On February 1, Owen had the carcase brought to his house in the College of Surgeons, to his wife's disgust, who thus comments upon it:—'The defunct rhinoceros (late of Wombwell's Menagerie) arrived while R. was out. I told the men to take it right to the end of the long passage, where it now lies. As yet I feel indifferent, but when the pie is opened——'

'*February* 6.—R. still at the rhinoceros.'

In February the 'Wollaston' Gold Medal of the Geological Society was awarded to Owen, and he thus remarks on it in a letter to his sister Eliza (February 28): 'My first number of Darwin's "Fossils" (strange animals) is out, and most unexpectedly the Geological Society has awarded me the Wollaston Gold Medal for that and other services to geology. Is it not curious that

Whewell should happen to be in the chair this year? He presented it to me in full conclave with a very handsome speech, to which I made the best acknowledgments I could. At the anniversary dinner, which I attended the same day, Whewell, when he proposed my health, alluded to me very feelingly as a fellow-townsman and old schoolfellow. After the dinner I adjourned to Lord Cole's and finished in the usual manner a happy day, but poor Mr. Stokes was sadly missed. He was too ill to come.' The diary then relates that 'the next day Lord Cole and Sir Philip de Grey Egerton dropped in and were much amused to find Richard with the baby on his knees, trying to feed him surreptitiously out of a bottle.'

'*March* 11.—To-day the Duchess of Cambridge, with her son and daughter, came into the giraffe house while we were there. The ourang-outang was brought to the Duchess, as there was such a crowd round his cage. He is by no means so interesting as poor Tommy, the chimpanzee. The great disproportion between his hind legs and fore, the heaviness of his movements, and his small eyes take much from the painfully humanlike expression which poor Tommy had. When we got home R. insisted upon having the legs of a fowl which we had for dinner, to examine the muscles.'

'*March* 23.—To-day sections of teeth examined under the microscope. Mr. White Cooper here. He is making full notes of R.'s lectures.'

'*March* 26.—To Mr. Cross's Gardens with R. to see an immense fire-balloon go up with three people. The gardens were full, but the balloon would not rise. The people did, though, and behaved shamefully: they beat Mr. Cross and his nephew, Mr. Tyler, and pulled things all to pieces.'

Throughout the May and June of this year Owen continued to give his Hunterian Lectures, chiefly descriptive of the Hunterian Collection, It is noticeable that, occupied as he was by his lectures and various scientific investigations, he still found time to interest himself with other matters often completely outside his own particular line. As an instance out of many given in the diaries, we find that in June he helped to promote an 'Actors' Benevolent Fund,' attending a meeting and dinner given by actors for some charitable purpose connected with their profession. After speaking, in company with such men as Sheridan Knowles, Charles Kean, and Mr. Harley, an amusing incident occurred. 'A member of the Zoological Council,' says Mrs. Owen, 'sat opposite Richard, and happened to ask him what day Lord Derby's dinner was, for all the Society's Council were invited to it. Lord Glengall, who was in the chair, heard the question, and, pointing to R., asked in a stage whisper: "Who's that?" The reply was: "Oh, nobody in particular—only the first anatomist of the age!"

'*June* 13.—R. engaged on the apteryx. In the evening he went to the dinner given to Sir John Herschell on his return from the Cape.'

'*June* 16.—To-day one of the giraffes lifted to his own height a peacock in full spread, and, after giving the bird a shake, which left a mouthful of long tail-feathers in his mouth, let him drop, and the peacock ran off with his train shut up in a great fright. The giraffe lifted him by seizing some of the middle feathers (where the Argus eyes are) as the peacock was proudly displaying them, and then began chewing them with much satisfaction. The keeper gave him a whipping for his trouble. The peacocks were in the same enclosure as the giraffe. R.'s eyes are beginning to suffer from over-use. As he could not read or write this evening, we went to Seguin's benefit. Handel's "Acis and Galatea."'

'*June* 29.—R.'s last lecture (Hunterian).'

In the early part of August Owen attended the meeting of the British Association at Newcastle, travelling from London by sea. He writes to his wife from Gateshead Rectory, where he was the guest of the rector, Mr. Douglas. 'The "Ocean" arrived with her cargo of philosophy, and, I ought to add, literature, for Harriet Martineau was on board. See other side' (a sketch which represents that lady holding up a huge ear-trumpet).

After being present at the meeting of the British Association, Owen went to Germany for the purpose of attending the 'Meeting of German Naturalists,' and of examining the various museums within reach of his tour. He writes to his wife to say that he has determined to go first to Holland *viâ* Hull, and will therefore not return to London. On the same sheet he sends a letter to Clift, in which he says: 'Procure me at Coutts' or Hammersleys' two circular bills which are payable on demand at any of the bankers in any of the towns I visit near the Rhine or in Holland. Will you give them to Cooper[4] to deliver to me at Rotterdam along with my carpet bag. . . . By the way, they made a secretary of me at one committee [medical], and I shall be truly glad to get into Holland, where pipes are smoked in peace. All proofs must remain till I come back, which will be at the end of September, when I hope we shall keep little Willie's first birthday in happy reunion.'

Owen reached Rotterdam on August 31, 1838, and we find him writing to his wife from the 'Kleine Skippershaus' as follows: 'Dr. Richardson[5] informed me that the reading of my report on the Marsupialia was fixed for the morning I started, and showed me the announcement. I had totally forgotten it, hadn't had time to pen a line, but many had come expressly to hear it, so I begged

[4] William White Cooper. [5] Dr. John Richardson.

ten minutes and retired to the committee-room, and then returned and gave a *vivâ voce* account of the matter about an hour and a half long. Mrs. Buckland and lots of ladies, mostly Quakeresses, were there, and I modified the reproductive part of the history as delicately as possible. The Stonesfield opossum and Dr. Buckland were not forgotten.' He then relates how he visited Ravensworth, where they breakfasted at three. 'After breakfast dancing commenced, which was sustained both by the fair and the philosophers in full vigour till six, when we drove off' [to Durham to Dr. Gilly's]. 'Dr. Buckland marked out my tour, and we agreed to meet at Freiburg, where the German naturalists assemble.' Passing next to York, Owen visited the Minster and the Museum, and at 7 P.M. the same day he took the mail to Hull. The rest of the letter is occupied with an account of his sea-passage, which apparently caused him little if any discomfort, and he is left awaiting at Rotterdam the arrival of his friend Cooper.

His next communication to his wife is dated Plaats Royaal, Leyden, September 4, 1838, and runs as follows:—

'I cannot doubt but that you will already have received the notice of my safe arrival at Rotterdam, which I sent in the only *cross* letter I ever wrote, so far as I remember, in my life; but learning that the post for London leaves Leyden

only twice in the week, and that to-night is one of the nights, I cannot let the opportunity pass. You will naturally have some difficulty in deciphering this epistle, for, having lived in the Dutchest houses and Dutch styles, and been further exposed to a Dutch fog in a Dutch *trek-schuit* on a Dutch canal, the webs that began to develop themselves between my toes on the second night at Rotterdam have, in spite of tobacco and schiedam, made their appearance, and are spreading fast in the digital interspaces, and I can hardly doubt but that in a sufficiently extended residence I should be converted into as amphibious a mammifer as any in His Netherlandisch Majesty's dominions. They say the palmipedous character is lost as you proceed up the Rhine, so that I have hopes of returning in a recognisable state even to my dear little darling Willie, whose good health and progress it did my heart good to read of. I spent a glorious morning in the museum at the Hague. There they have Savery's real "Orpheus and the Beasts," but, believe me, nothing to compare with ours. I saw four pictures by the same master as your father's. His style is inimitable, and is more recognisable, because more depending on touch, or the mechanical working of the picture, than any other quality, except truth and nature in the individual object. It is by Breughel *de Velours*, so called on account of his smooth finish, and to distinguish him from

Br. *d'Enfer*, whose picture of "Christ Delivering the Souls out of Purgatory" is in the same collection. There is the same light falling on the upper branches—an effect which I saw in the beautiful park of the Palace at the Hague—the same exquisite little goldfinches, not a bit better than in ours, perching on the branches in the picture of Paradise, in which the Adam and Eve are by Rubens. In another of Breughel's the foreground is separated from the background by the same oblique hard hedge, and the distance has the same kind of city and canal in the same clear, cold, grey-blue tint. I was delighted to have so many confirmations of the value of our gem. I was told, however, that good prices, as 100*l.* to 500*l.*, were only given for joint pictures, in which the figures and composition were by another master; and that Breughel, when left to himself, as in most of his pictures and ours, failed from his want of taste in grouping and effect. There are only two, not joint-pictures, of his in the gallery. . . . What do you think I espied in a dark corner? Why, a DODO—a dodo in full plumage. Note that he (the artist or the dodo, which you please) lived between 1576 and 1639. He was contemporary with the man whom Natural History describes as having brought the stuffed dodo from Mauritius. The nostrils are very far forwards, as in the apteryx, and the feet very similar in the relative position and size of the toes. I took a sketch;

the head precisely resembles that of the Oxford Museum specimen. . . . For all the Dutch peculiarities I see reason, the more I observe the conditions under which these worthy people exist. A *sale* or *fade* depressing odour pervades the country, at least at this season, arising from the stagnation of the canals ; and when the heat of the day no longer serves to retain in suspension the vapours of the canals and swamps, the foggy and chilly atmosphere at once explains the utility of a warm dry whiff of baccy ; the extra quantity of moisture inhaled equally demands the counteraction of a dram. A great proportion of the working people have the trunk bent like a quadruped at right angles to the legs, in the universal occupation of pushing along the innumerable boats of all shapes and sizes which cover the canals, by means of long poles pressed against from the breast and shoulder by the whole weight of the body and working of the hind-legs. . . . This morning I have visited Temminck, Professor v. d. Hoeven, and the museum ; dictated several notes to Cooper, who scribes capitally.'

Owen gave his address at Cologne, and in his next letter, dated Utrecht, September 10, 1838, continues the story of his travels : 'Here [Amsterdam] are several of the Dutch painters' *chefs-d'œuvre*—Dow, Wouvermans, Rembrandt, &c., &c., but I have a Catalogue with notes and marks to comment and descant on some fireside

evenings at home. . . . My last letter was dated Leyden. After examining the collections and noting the interesting objects contained in them (contemplating the gigantic salamander living in his tub of little fishes, on which he has grown fat, and is now 3 ft. 3 in. long, examining the portraits of the Professors of the University, among whom Salmasius, Albinus, Boerhaave, &c., promenading round the Botanic Garden with old Professor Reinwardt), we set off one fine morning for Utrecht.' Here follows an account of his visit to Dr. Suerman and Van der Capella, and of a tea he had with the Suerman family, and concludes: 'After tea the Professors of the University arrived to pipes, coffee, and hock, and a long night was made of it, in which my wits were kept at full stretch. Made my first essay in conversing in German; not so difficult after a while. . . . Kind remembrances and thanks [to Clift] for his experienced hints to Mr. Hills;[6] he beats many of the Dutch still at the beasts.'

On September 20, 1838, he wrote again to his wife from Freiburg im Breisgau: 'To-day about four hundred sat down to the *table d'hôte* of the Association. I was between Mrs. Buckland and the Prince of Musignano,[7] and England and home came again very near and warm to my

[6] Robert Hills, Secretary to the Royal Institute of Painters in Water Colours.

[7] Charles Lucien Bonaparte, Prince of Musignano and of Canino.

recollection after my long and somewhat fatiguing journey. Many were the kind inquiries after yourself and our little one. Dr. and Madame Eschricht not far off, and Dr. Henle in sight. Dr. Buckland had Cooper next him at another table. Agassiz divided Mrs. Buckland from her friend Mrs. —— of Oxford. . . . You will see already one of the peculiarities of the German meeting as distinguished from the English—wives and sisters mingling in social happiness at the festive board. They are not, however, admitted, as at Newcastle, to the scientific discussions of the morning. . . . My day's work has been as follows: Rose at six, breakfasted at half-past, and joined the Anatomical and Zoological Section at seven. Papers and communications in German and French. My reception has been most gratifying and flattering: I was assigned the seat of honour on the right hand of the President. At eleven adjourned with Prince Lucien to his hotel to look over some zoological objects: he has pressed a warm invitation for us to visit him at Rome when our little boy is big enough to run about and play with his own children. We then went to the Geological Section. At half-past twelve adjourned to the museum, and received our ticket for the grand dinner given by the Grosz Herzog to the assembly at a beautiful country palace some miles from hence.'

With regard to the dinner given by the Grosz

Herzog, Owen relates the following amusing story :—

'The Associates were notified that on entering their names at the Town Hall, vehicles would be provided for the journey—about eight English miles from Freiburg—in the order of booking. Professor Eschricht had brought his newly married bride to the meeting, and I was accompanied by my friend, Mr. White Cooper. We entered our names as a party of four for one of the carriages, and were enjoined by the official at the Town Hall to present ourselves there not later than 6 A.M. The day opened brightly, and we were led to seats in the Council Chamber and instructed to remain till our names were called.

'The rattle of wheels over the rough pavement of the "Place" began soon after our arrival, and continued uninterruptedly. Name after name was called; party after party descended and drove off. Both Eschricht and I kept our ears open, and, unwilling to add to the difficulties which beset the officials of the Town Council, caused by impatient inquiries and demands for carriages, we sat silent till seven o'clock arrived; the sound of departing wheels had then begun to slacken, and soon after to cease. Then Eschricht, as a better master of German than myself, went to one of the officials who was standing near the door, and observed that our determination to obey the official directions and to wait in silence

till our names were called, had apparently caused our loss of the carriage which had been booked in our name.

'The worthy Burgomaster's countenance fell; he raised his hands in deprecatory fashion, and declared it was all the fault of those "Französische;" that they had violently appropriated to themselves vehicles in waiting in the Square, and that the order of "call" had been compulsorily suspended; that every wheeled vehicle which Freiburg and its vicinity could contribute to the excursion was now occupied and on its way to Baden-Weiler. Outside the portal was a gentleman on horseback, mopping his face in the hot sunshine; he had acted officially in guiding the parties and starting their respective vehicles. This duty was appropriately volunteered and discharged, under unlooked-for difficulties, by the Professor of Obstetrics of the Freiburg University.

'My friend mildly remarked that the consequence of our proper behaviour was more especially to be regretted, since his friend and himself were professors who had travelled from the greatest distances to attend the meeting—Professor O. from Newcastle, North of England, and himself from Copenhagen.

'Then ensued an animated discussion between the Freiburg Professor and the Burgomaster, which issued in the Professor putting spurs to his

horse and galloping off. Whereupon we were confidentially informed that the only individual possessing a carriage in Freiburg who had re-refused to contribute it to the day's excursion was his Eminence the Prince Archbishop. Some time having elapsed in dismal silence, we concluded that we had lost our intended excursion, and grieved more especially for the fair bride's disappointment. It was getting near eight o'clock, when we suddenly heard the clatter of hoofs and the sound of carriage wheels, and there drew up at the Town Hall a grand capacious coach, with four fine long-tailed black horses, a corpulent coachman in purple livery, and, hanging on behind, a footman in the same, and a chasseur in green and gold!

'The two latter descended; one threw open the coach door, the other rattled down the steps, and in we went as directed. I thought Madame Eschricht would have vanished in the depth of the purple cushion on which she sank! No sooner were we all seated than the steps were put up, the door banged to, clack went the coachman's whip, and we were rattling over the town pavement in a style that brought all the remaining residents, as it seemed, to be spectators.

'Now the solution of this unexpected phenomenon, as the cavalier Professor afterwards explained to me, was as follows:—

'Deeply impressed by the disgrace which he

felt must fall on the authorities of the "meeting," he determined to make a personal appeal to the Prince Archbishop. His Eminence was in bed, but the urgent Professor was admitted, and set forth in glowing terms the merits of the two deserted scientists, the distant lands from which they had travelled, the estimation in which they were held by the "Association," and especially the exemplary obedience to directions, which had led to the disappointment caused by ruder—especially French—visitors.

'The Archbishop turned on his pillow, and in choice ecclesiastical Latin pronounced, "Then the last shall be first, and the first last," and gave his orders to the attendant chaplain accordingly. The archiepiscopal coach being horsed and manned, the Professor, rejoicing, returned with it to the Town Hall.

'As we set off in full trot we soon came upon the hindmost of the various vehicles which were toiling up the hill. The Archbishop's coachman bawled imperatively, and the hindmost wheeled concern pulled abruptly to the roadside; I thought they would have gone over into the ditch. Their example was followed by the rest, and at length we came to a handsome barouche in which sat Oken, Dr. and Mrs. Buckland, and a titled Austrian. As we dashed past, I could not resist grinning at Dr. Buckland, and bowing out of the window to Mrs. Buckland, who stared in amazement.

'No sooner had we headed the procession than the dignified coachman reined in his steeds and proceeded in jog-trot pace, giving all behind the benefit of the dust. In due time we entered the grounds of a Badenese baron, whom the Grand Duke had deputed to discharge his hospitalities to the scientific Associates.

'As we came in view of the Château I saw ranged in a row, on each side of the approach, the gamekeepers, or Rangers, which, in their best liveries, reminded me of the singers of the huntsman's chorus in "Der Freischütz." Our noble host was, in fact, the Grand Duke's grand huntsman; he stood at the entry, and as our coach drew up at the handsome flight of steps, came down, offered one arm to Madame Eschricht, and led her into the hall. We followed, and graciously received a complimentary welcome, to which Eschricht, perfect in German, replied with dignified politeness. Cooper was introduced as my secretary.

'We had agreed, *en route*, to accept whatever interpretation as to our rank might be made, in connection with the exalted character of our *cortège*.

'Mrs. Buckland, greatly struck with the beauty, grace, and attire of the bride, took repeated opportunities to pluck me by the sleeve and ask, Who is that lady to whom the baron is paying such attention? What is the title of her

husband? How did you come to be brought with them in the Archbishop's coach? We were told his Eminence had positively refused its use to the Association, &c., &c.

'However, the visitors were rapidly crowding in, and forming their parties for the stroll to the Roman ruins of the Baths, so I warded off the impatient inquiries by "I'll tell you all about her when we return."

'After some hours' strolling to all the favourite points of view, we returned to the grand huntsman's baronial castle. Hospitable tables were spread in the great hall; the host, singling out Madame Eschricht, seated her on his right hand, and, as I had led her into the hall, he would have placed me on his left; but I brought forward and introduced the President, and Oken was followed by Eschricht, Buckland, Prince Charles Lucien Bonaparte, and other notabilities of the Association.

'At the close of the feast, in which the Rhine wines were memorable, the Archbishop's carriage being summoned, our "partie carrée" took their seats and led the way back to Freiburg. We descended at the Town Hall. Eschricht and I had agreed to give a *douceur* to the Archbishop's staff. But the chasseur most politely declined, saying in German that his Eminence, his master, felt honoured by our acceptance of the small service he was able to afford us, &c.

'And we gaily walked off to Eschricht's quarters to chat and laugh over the unexpected incidents of the excursion.

'I called on Mrs. Buckland the next morning —the Baron's reception of us had confirmed her in her conclusions of the grandiosity of my fellow-travellers—and she heard, with mingled emotions, the facts of the case; admitting, however, that the ladies of the Association could not have been better represented than by the fair and graceful young Danish bride.'

The following and last letter that was written by Owen to his wife during this tour is dated Heidelberg, September 25, 1838, and in it he says: 'We arrived here at twelve noon this day; washed, shaved (we have been in the *diligence* a day and night), mended a large rent in my inexpressibles, and got into trim to call on Professor Tiedemann. . . . I have arranged to arrive at Antwerp and set sail—or steam I should say—for London and home on Sunday, 30th, and trust to clasp my best loved treasures in my arms on Monday or Tuesday. I have had a sore temptation to resist on the part of Agassiz, who is accompanied by Prince Lucien and the Bucklands to Neuchâtel this day, but I said that Switzerland must be another journey when you and I returned from Italy. . . . My reception at Freiburg has been most flattering, and my visit most agreeable. But the Germans work harder

than the Newcastle men, and time passed pretty quickly there. . . . We left Freiburg Monday (yesterday) at noon . . . No dinner was to be had on the road, so I offered a market woman at the corner of the street a small coin with about half a farthing's worth of copper in it, and pointed to her basket of fine jargonel pears. She gave me two handfuls and then began to fumble in a huge pocket *for change.* I pointed next to a wisket of lovely grapes—blue and green ; got two bunches of each, and still change left—had it out in plums ; and Cooper and I, with our pockets full, next called in at a baker's, got some rolls, and made a very primitive and delicious meal as we rolled along out of Freiburg. . . . Many kisses for my Willie. I shall soon sing him into recollection if he has forgotten me. . . . Many kind inquiries and good wishes were made, and often, after my father-in-law ; there were many Germans who had a lively recollection of his urbanity to them when in London. We start to-night for Mannheim, then steam to Bonn ; there a day or two museuming, and then for Home, Home, dear Home !'

Owen returned from Germany, as the journal shows, on October 1. The following entries then occur :—

'*October* 20.—R. to a Council at the Zoological Gardens, where an inquiry was made about the death of the poor djeggetai, or wild ass. The

Wappiti stag had forced open the wooden door which separated them, and gored the poor creature so horribly as to oblige the keeper to put it out of its misery.'

'*November* 1.—R. at the British Museum with Lord Northampton, who had written to R. for an appointment. It was to examine a fossil which has evidently puzzled people. It proved to be the cartilaginous rays of the fins of an enormous fish denuded of the connected membrane.'

'6*th.*—A visit from Dr. and Mrs. Buckland and their two eldest boys, a friend, and a couple of live marmots; both the Doctor and Mrs. Buckland looking all the better for their German tour. The Doctor sat on the sofa with the two marmots and his bag on his lap. They were all going to Drury Lane. I don't know whether the marmots are going too!'

'17*th.*—R. very busy over the muscles of the apteryx. When finished, he sat up till three reading "Gilbert Gurney Married."'

On November 24 Owen received the news from Lancaster of the illness of his mother, and set off at once to his sisters. He wrote a short note to his wife, dated Lancaster, Sunday, one o'clock, November 25, 1838:—

'As I anticipated, my poor mother's sleep proved to be her last; she never revived more than to be conscious of the little kind offices done to ease her position and breathing and to sip

a little wine. She expired in peace at eleven o'clock last night. If I had left home on Thursday night, I should not have found her in a conscious state, as she has slept from early on Friday morning. I found my sisters and Cousin Grace much comforted at seeing me.

'I have had a cold and melancholy journey, not being able to sleep, and now can scarcely guide my pen. . . .'

On November 30 he sent his wife further particulars of his mother's death and says: 'Yesterday I followed the remains of my dear mother to their last resting-place. My sisters and Cousin Grace—few and sincere mourners—were her only followers, for she had outlived all her old friends save one or two who are confined by the infirmities of age to their beds or houses. She rests beneath the tree which she pointed out to me at the conclusion of our last walk together; and her usual stroll last summer was into the churchyard, where she used to sit on a gravestone having a view of the place she had selected for her last home, and often cast a weary eye around as if longing to be at rest. She was then too feeble to walk alone, and her active mind and habits made her feel her increasing infirmities and, as she expressed it, her uselessness here. . . .'

On December 2, 1838, Owen wrote to Clift on general matters, and mentions: 'As my report on British Saurians requires me to examine Sir Philip

Egerton's rich collection, I may not again have so convenient an opportunity of devoting a few days to it as when passing so near his mansion in my journey south by the railroad. . . .' 'I find my grandmother by father's side lies buried in Wanstead Church, Essex, in the vault of the Froysels, her family. She died a few hours after my father's birth—very young. Some summer's day we must make a holiday there, and I a pilgrimage to her early tomb.'

# CHAPTER V

1839-40

Foundation of the Microscopical Society—Reconstruction of the 'Dinornis'—Corresponding Member of the Institute of France, 1839—First part of the Report on British Fossil Reptiles read before the British Association at Birmingham, 1839—Part I. of the 'Odontography' completed, 1840.

For some years Owen had taken a considerable interest in microscopical work, and had made many observations in the corpuscles of the blood in man and other animals. About this time, also, Dr. J. E. Bowerbank, of Highgate, gathered around him a few friends at certain stated times for the discussion of microscopical problems. The little band used to meet at each other's homes, and Owen was a frequent but not a regular visitor. Eventually Bowerbank, Farre, and the rest determined to form a society which should have for its object microscopical research. Owen, from his abilities and position, was selected as the first president of the new society, and he occupied the chair in 1840 and 1841, and delivered the first two presidential addresses to the Royal Micro-

scopical Society.[1] His friend, Dr. Arthur Farre, was the first secretary.

While occupied in giving his Hunterian Lectures for the year, Owen described a 'fragment of the femur of an unknown bird from New Zealand.' This fragment of a large bone, like a marrow-bone in appearance, was one day brought to him by a sea-faring man, and from this slight evidence he built up a creature which he asserted was a gigantic wingless bird, in spite of the strong resemblance which the bone had to that of an ox. The story is best given in his own words, taken from the preface to his 'Extinct Birds of New Zealand.' Here he says :—

'The advantage of attention to any object of natural history, however unattractive, if it be not a recognisable or previously known specimen, is exemplified in this fragment of bone.[2]

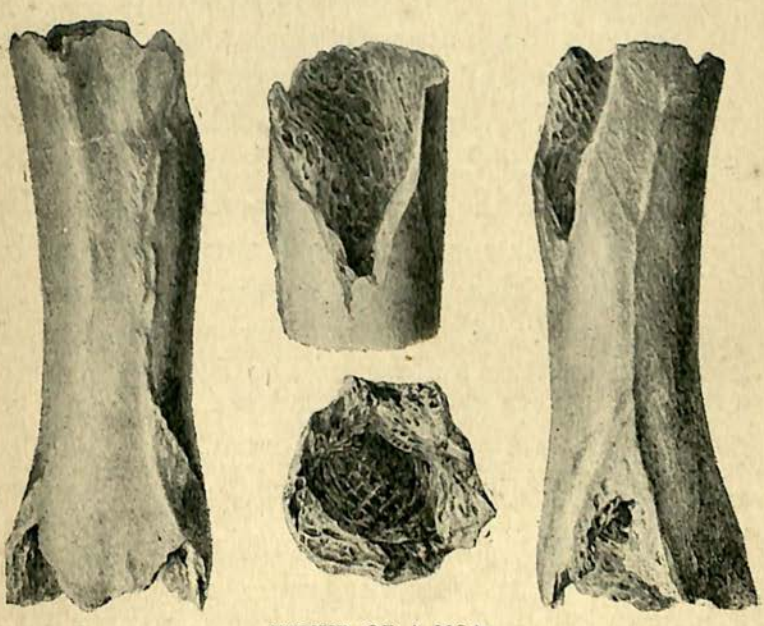
'The individual who originally brought it to me stated that he had obtained it in New Zealand from a native, who told him that it was the bone of a great eagle.

'I assured him that he had been misinformed ;

[1] *Journ. R. Microsc. Soc.*, 1893, p. 106.

[2] The specimen in question was submitted for sale in the first place to the British Museum, and the vendor was recommended by Dr. Gray to offer it to the Royal College of Surgeons. The price asked (10*l.* 10*s.*) was deemed too high for the fragment by the then Museums Committee of the College, and it was afterwards purchased by Richard Bright, of Bristol. It has since been presented, with the rest of the Bright Collection, to the Trustees of the British Museum by his grandson.

that the specimen had not the structure of a bone of such a bird of flight; that it was a marrow-bone, like those brought to table wrapped in a napkin. To further questions as to its locality, the vendor replied by showing, amongst other evidences, a jadestone weapon peculiar to the



FEMUR OF A MOA

New Zealanders, which he had also brought from the island, and still seemed to attach so much value to the unpromising fragment, that I consented, being at the time specially engaged, to try to make out the bone, if he would leave it with me and call for it the next day.

'As soon as I was at leisure I took the bone

to the skeleton of the ox, expecting to verify my first surmise; but with some resemblance to the shaft of the thigh bone, there were precluding differences; from the ox's humerus, which also affords the tavern delicacy, the discrepancy of shape was still more marked. Led by the thickness of the wall of the marrow cavity, I proceeded to compare the bone with similar sized portions of the skeletons of the various quadrupeds which might have been introduced and have left their remains in New Zealand; but it was clearly unconformable with any such portions. In the course of these comparisons I noted certain obscure superficial markings on the bones, which recalled to mind similar ones which I had observed on the surface of the long bones in some large birds. Thereupon I proceeded with it to the skeleton of the ostrich. The bone tallied in point of size with the shaft of the thigh-bone, but was markedly different in shape.

'There were, however, the same superficial reticulate impressions on the ostrich's femur which had caught my attention in the exhaustive comparison previously made with the mammalian bones.

'In short, stimulated to a more minute and extended examination, I arrived at the conviction that the specimen had come from a bird; that it was the shaft of a thigh-bone, and that it must have formed part of the skeleton of a bird as

large as, if not larger than, the full-sized male ostrich—with this more striking difference, that whereas the femur of the ostrich, like that of the cassowary, emu, rhea, and eagle, is "pneumatic" or contains air, the present huge bird's bone had been filled with marrow, like that of a beast.

'When its owner called the next day, I told him, with much pleasure, the result of my comparisons, and assured him that I would recommend the purchase of the bone, at the price asked, to the Museum Committee.

'I regret to relate that, notwithstanding my testimony, the purchase of the unpromising fragment was declined; and it was not convenient to me in 1839 to pay the sum out of my own pocket. I promised, however, to commend the specimen to other possible purchasers, one of whom I found, through my friend Mr. Broderip, F.R.S., in Benjamin Bright, Esq., then M.P. for Bristol.

'Meanwhile the vendor permitted me to make some drawings, and these, together with my descriptions and conclusions, were submitted to the Zoological Society of London, November 12, 1839. I was not surprised that there was some hesitation in the Publication Committee as to the admission of the paper with the plate into the "Transactions."

'The bone was not fossilised; it might have

come from a kind still existing. But a bird larger than an ostrich, belonging to a "heavier and more sluggish species," could hardly have escaped observation in a tract of dry land such as New Zealand. Moreover, after arriving at the conviction that the "bone" was part of a huge terrestrial bird, I still felt some uncertainty as to the alleged habitat. At that date, the largest known land-bird of the islands of New Zealand was the apteryx, and even its existence had begun to be doubted. Accordingly, the Earl of Derby, then President of the Zoological Society, who possessed the unique skin, which had been brought by Captain Barclay from New Zealand in 1812, and had been figured by Dr. Shaw in his "Naturalist's Miscellany," transmitted the specimen to the Society, and confided it in 1833 for re-examination and description to William Yarrell.

'Now this bird was barely the size of a pheasant, and "the bone" indicated a bird as big as an ostrich.

'But the ostrich has the continent of Africa for its home, the rhea roams over South America, the emu over Australia, casuarius has not only New Guinea, but North Australia, and some neighbouring islands, as its habitat.

'The misgivings of Vigors and some other of my zoological contemporaries were as to the possibility of a terrestrial bird, of the size I sup-

posed, having been able at any time to find subsistence in so small a tract as New Zealand.

'That island, moreover, had been visited by accomplished naturalists, and the only evidence of a wingless bird which they had been able to obtain there were fragments and feathers of a small one called "kivi-kivi" by the natives, who hunted it by night with torches and dogs. M. Lesson accordingly refers the evidences of this bird brought from New Zealand by the circumnavigatory vessel "La Coquille" in 1828, to the *Apteryx australis* of Shaw. Similar evidence is given by M. D'Urville and MM. Quoy and Gaimard.

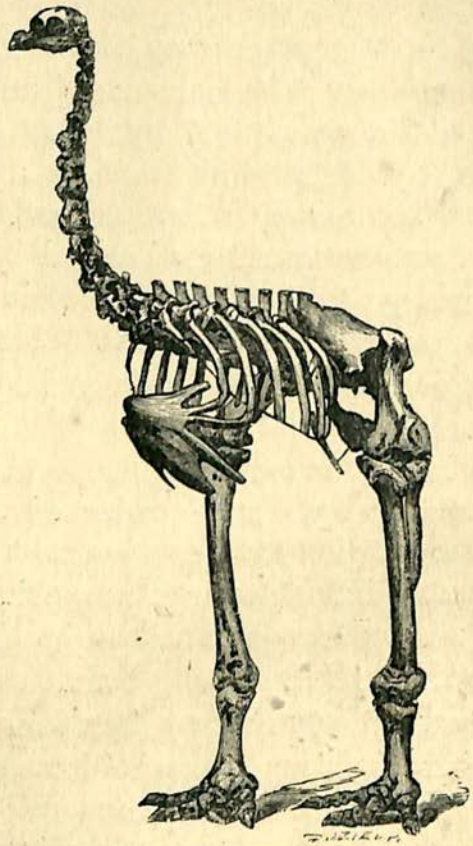
'The interpretation of a single fragment of bone seemed to my more experienced seniors too narrow a foundation for the inference "that there had existed, if there does not now exist, in New Zealand a struthious bird equal in size to the ostrich." Nevertheless, I urged that it was not an ostrich, consequently not any then known species of bird, and that it might as well have come from New Zealand as anywhere else.

'Ultimately the admission of this paper into the "Transactions," with one plate, was carried by the Committee, the responsibility of the paper "resting exclusively with the author."

'On the publication of the volume, one hundred extra copies of the paper were struck off, and these I distributed in every quarter of the

islands of New Zealand where attention to such evidences was likely to be attracted.

'The confirmatory response, anxiously expected



DINORNIS (PACHYORNIS) ELEPHANTOPUS, OWEN

Side view of a skeleton of the Elephant-footed Moa, from New Zealand, restored by Owen. About $\frac{1}{18}$ natural size.

through the years 1840, 1841, and 1842, at length arrived, in a letter from the Rev. William Cotton, M.A., in one from Colonel Wakefield, and in some collections of bones transmitted by

the Rev. William Williams, and received in 1843 by the Rev. Dr. Buckland, at Oxford, and by Dr. (afterwards Sir John) Richardson, at Haslar Hospital. These specimens, generously confided to me for description, formed the subject of a paper communicated to the Zoological Society, November 28, 1843.'

The incredulity and doubt with which this opinion was received were too great for a time for Owen's mere assertion to dispel; but by-and-by the whole skeleton was brought over to this country, and then his opinion was converted into a fact. 'We well remember,' remarks a writer in the 'Quarterly Review' (March 1852),[3] 'seeing this fragment of the shaft of a femur when it first arrived, and hearing the opinion of the Professor as to the bird to which it must have belonged. He took, in our presence, a piece of paper and drew the outline of what he conceived to be the complete bone. The fragment, from which alone he deduced his conclusions, was six inches in length and five inches and a half in its smallest circumference; both extremities had been broken off. When a perfect bone arrived and was laid on the paper, it fitted exactly the outline which he had drawn.'

The following extracts from Mrs. Owen's diary show the way in which Owen employed his time and relieved his work with intervals of relaxation:

[3] W. J. Broderip.

'After a hard day's work, I persuaded R. to stop, so we called for my father and mother and went off to Covent Garden. Shakespeare's "Tempest," as he wrote it, was the attraction, and the crowd tremendous. My father softened the heart of the box-keeper with a shilling, for he had many applicants, and we got second and third seats in a good box. Neither R. nor I had ever seen the "Tempest." Father and mother had seen it several times, but as it used to be played, garbled and altered in a terrible manner. Miss P. Horton, as Ariel, excellent; as was G. Bennet (Caliban). Macready very disappointing as Prospero, his voice is now so feeble and his manner monotonous. Miss Faucit, of course, played well as Miranda, but did not look the part. For the first time since poor Joe Grimaldi could we sit out the pantomime.'

'*January* 10.—R. to the Geological Society, where he read the paper on Dr. Harlan's fossil and the Stonesfield jaw.' Dr. Grant was obliged to admit, in spite of his teeth, that they were mammalia and not saurians. As soon as R. came home he made for "Barnaby Rudge," and sat with him till past two o'clock.'

'12*th*.—We examined some of the eggs of the argonaut in the microscope. It was astonishing to see the tiny eggs containing the creature with its arms and immense eyes and the body like a cloud. There was no appearance of the rudimentary shell, but all seems to make it certain that

it inhabits its own shell and no other. Mr. Broderip also had a look afterwards. R. showed him the specimen in the bottle, and seemed to think the point was practically settled.'

'18*th.*—At eight o'clock with R. to the Royal Institution to hear Faraday lecture on electricity, galvanism, and the electric eel. Faraday is the *beau idéal* of a popular lecturer.'

'26*th.*—R. and I to Great Ormond Street, where Madame Power[4] showed us her boxes of fossil shells, &c., and some molluscs in bottles, and, above all, the argonaut shells with the fractures made by her in her experiments, beautifully filled up and mended: three specimens in different stages of reconstruction, the first filled up with a substance like the lining membrane of a boiled egg. This was done in about ten minutes after the piece was cut away by Madame Power; the more perfect restorations had the corrugations formed to match the rest.'

'*February* 2.—R. to Madame Power's and brought away three bottles full of argonauts. A beautiful collection! One of them has the sail spread back over the shell, the suckers on the points. Madame P. says that if we count the suckers they will be found to correspond with the number of points. This, with other circumstances, makes the question, I think, not whether

[4] Jeanette Power, *née* de Villepreux, a lady who made extensive researches on the paper nautilus.

the poulpe belongs to the shell, but how it has come to pass that, after so many have debated on the subject, Madame P. has been the first to discover these things.'

On February 7 Owen received the news that he was elected corresponding member of the Institute of France (Section d'Anatomie et de Zoologie).

'Some little time ago,' Mrs. Owen writes *à propos* of this election, 'R. was pressed by one or two well-meaning friends in France, to send to the Academy a list of his works as a sort of certificate that he was worthy of the honour. This he flatly but politely refused to do, or to act in any way so as to lead them to suppose he was touting to be elected. He is now doubly glad that he was firm about it, as the present conduct of the Academicians shows their opinion in a public manner of the strange conduct of Coste. Müller and Oken were the others for whom they balloted—both considerably older than R.'

On February 26, Prince Ch. Lucien Bonaparte writes to Owen from Paris. After remarking that he has sent Owen a MS. for the Linnean or some other society, which he is anxious to have printed immediately, he continues:—

'I rely, at all events, exclusively upon you, whom I know as a man of more doing than saying.

'And now let me congratulate you upon your

glorious election by the French Institute and upon your triumph over the first luminaries of Germany. You know that I refused standing against you, and my friendship in this case was more useful to myself than to you. The scientific friend who has announced me your election reminds me of my withdrawing before you, and adds "Vous avez eu la modestie" ("bien rare," he could have added, in France, "chez les hommes de votre note"). We shall see now whether I shall be elected at the first election for the remaining vacancy, which is to take place on the 10th or 17th of March. I confess I should much prefer to be elected a member of the Royal Society, for it would help me in the accomplishment of my favourite plan, the periodical meetings of the scientific men in Italy. You will know shortly the particulars; I can only say now that we shall meet on October 1 at a preparatory meeting at Pisa. Can we not hope to see you and other eminent Englishmen among us? We also have done ourselves the honour of electing you a member of our Academia dei Lincei, which holds their meeting in the capital! . . . Present my respectful compliments to Mrs. Owen, and bear in mind you have in me a profound admirer, and a friend who wishes to be tried in any occurrence.

'Your most affectionate and devoted

'CHARLES L. BONAPARTE,

'Prince of Musignano.'

Mrs. Owen's diary informs us that :—

'25.—A most curious mark of popularity witnessed yesterday in front of the College—a man parading up and down with a transparent lantern with the words illuminated "Owen's lectures to be sold!" R. says he has no notion what they can be like. Mme. Power here. She is going to France, she says, on account of her health—I think on account of her fossils. I am sorry no one has taken them off her hands in this country.'

'*March* 7.—R. at work on revision of "Marsupial Osteology." Afterwards comparing fossil bones, those brought by Sir Woodbine Parish from Buenos Ayres with those published in the Berlin "Transactions." Both found with coat of mail.'

'10*th*.—R. busy over his paper[5] to show that the Megatherium has most probably no coat of mail, and that the bones found with the shield belonged to it. He has a beautiful and rare armadillo, shell and bones, which tell the story capitally; the relative size of the roses in the armadillo shell to the bones helps forward the matter strongly.'

'*April* 21.—R. to Lord Cole's to breakfast.

[5] This was the paper in which Owen corrected and redescribed the Glyptodon, an extinct armadillo-like animal from Buenos Ayres, whose armour had originally been confused as part of the integument of the Megatherium by Mr. Clift, Dr. Buckland, and others.

The valet began a pitiable tale of his master having been kept at the House till 5 A.M., and that he was still asleep. R. was just saying that he was not to disturb his master, when Sir P. de Grey Egerton appeared in a dressing-gown and begged R. to come upstairs, as he had a strange and rare fossil to show him. He led R. to a room and said, "There it is." There lay poor Lord Cole half asleep, but Sir Philip was remorseless and made him get up.'

'*26th.*—Two hampers came. When we opened them we found one contained a dead Lophius, the other a live bird of the diver kind. A note with them from the Isle of Wight explained that the bird and fish were seen and caught by some fishermen. The bird partly swallowed and stuck in the mouth of the fish. Perhaps they were both darting after the same object of prey. R. sent the diver to the Zoo, and a few days after the keeper told him the bird frequently dived and brought up fish in the pond. However, R. is afraid that it may not live long in fresh water, being purely a sea bird.'

'*May* 15.—Our young friend Frederick Pollock here. As a very little boy, he once crushed Richard with a remark. We were having a children's party at our house, and the boy went off to the dining-room and began looking over a huge folio volume on the sofa, while the other children were in the drawing-room dancing. R.

went after him and said, "Fred, why don't you go and dance too? If you don't learn to dance you will never please the ladies!" He looked up with a grave face and said, impressively, "For that very reason I never wish to learn!"'

'*June* 18.—Accouchement of Madame Giraffe at her residence in the Zoological Gardens, of a son. The mother standing licking some salt. The nurses had given the young gentleman some warm cow's milk out of a sucking bottle. It is wonderfully well formed for so recent an animal. It is like a big one reduced in size. Its mother will not allow it to go near her. Sir P. Egerton, who called and came with us, told me that deer left their new-born for a day or more, and that the little creatures lay without nourishment until the mother chose to come to them. The keepers said we need not hurry away, as the mother rather liked company than not. Mr. Whewell brought R. two MS. numbers of his great work[6] to-day for R. to look over.'

'25*th.*—R. to the Zoological Society. He intends to read his remarks on the young giraffe.'

'26*th.*—R. at the last minute made up his mind to see "Henry V." under Macready's management. He returned highly pleased, and said that Macready seems to have done for Shakespeare much as he had been trying to do for John Hunter.'

[6] *Philosophy of the Inductive Sciences.*

'28*th*.—Shocked to find the young giraffe dead. Nothing discovered to account for it. R. had the melancholy satisfaction of dissecting it.'

'*July* 24.—R. to Greenwich with Mr. Stokes and Lord Cole. Whilst the party were dining at the "Crown and Sceptre" some singers entertained them with glees. Lord Cole said they should sing "God save the Queen" to finish, and as the waiter was going to give the order Mr. Stokes whispered to him, "Tell them to strike up 'Old King Cole,'" which they did, to the infinite astonishment of King Cole himself.'

'28*th*.—Mr. Hills called to alter the fetlocks of the giraffes in his picture, which R. told him were not right.'

'*August* 26.—R. was to have gone to Birmingham this morning, but could not get his papers ready. He has been hard at work writing his paper for the Association on British Saurians.'

'27*th*.—R. spent a sleepless night and had a bad headache in the morning, but he had to start for Birmingham at eight. I helped him pack the diagrams, &c., and all was ready by half-past, and he started in a cab.'

It was at the meeting of the British Association held in Birmingham in 1839 that Owen read the first part of his 'Report on British Fossil Reptiles,' in which he collected for the first time all the information then known. Previous to the meeting he paid a short visit to the Bristol Museum

in order to make his final notes on the remains there preserved, and also visited Lyme Regis, and the quarries at Street, in Somersetshire. He writes to his wife from Bristol on August 21, from the 'White Lion,' Broad Street, 'with a coffee-room pen:' 'After a tedious passage of more than thirty hours (instead of twenty) I arrived here this afternoon at four.' He then says he is leaving for Street and Lyme Regis, and hopes to return to London by Friday morning. Referring to Bristol, he says: 'I posted out on a voyage of discovery to the Philosophical Institution. . . . The old man [Stutchbury] was out, but expected in soon. So I asked for the museum and busied myself with notes on Sauria till he arrived. His first exclamation was characteristic: "Well, I've heard and read a deal about you, let's see what you're like;" and he brought me by both shoulders to the window and scrutinised accordingly. I stayed with him till eight, chiefly in the museum, where I saw all I wanted. . . . The Avon near Bristol, or I should say Clifton, is equal to the best Rhine scenery.'

Owen reached Birmingham on August 27, 1839, and stayed with his old friend Middlemore at 23 Temple Row. He contracted a severe chill on his journey there, however, and 'went to bed early, took, by my host's advice, some colchicum and opium, and had a better night. . . . Have been honoured with an invitation to dinner

at Sir Robert Peel's at his seat near here. Thirteen of the Association have been selected. Perhaps nothing could have given me more pleasure. Middlemore has, however, been peeping down the red lane, and he says I must not go with my throat in its present state, but must nurse at home on slops and febrifuges. To this I reluctantly consent, as the only means of getting my voice into order to read my report on Thursday, for, what with abbreviations and railroad scribblings, nobody could read the MS. but myself.'

Writing next day to Clift, he again refers to his disappointment at not being well enough to go to Sir Robert Peel's, and says the reading of his report has been put off till the Saturday.

On September 3, 1839, Owen writes to his wife from Florence Court, Fermanagh, the seat of Lord Cole, where he had gone from Birmingham. He says: 'I was sufficiently well on Saturday morning to read my report, which was satisfactory to all concerned; it lasted from 10 till 12.30. I had just time afterwards to pack, eat a hasty lunch, and set off by the mail train to Liverpool. There we were transferred from the steam carriages to the steam-boat, and set sail on Saturday evening with a dark, lowering sky. . . . The journey [to Enniskillen from Dublin] was extremely interesting to me. The Irish cabin beats description. You might imagine a

traveller describing his conviction of the high and peculiar value which the Irish have for the hog-tribe; the stys appropriated for the shelter of these quadrupeds he would tell you surpassed in size and commodiousness those of any other nation. They are frequently warmed by means of a turf fire, so that the children are often attracted into them, and may be seen playing with the pigs. What is remarkable is that, although the peasantry are far from being few in number, their habitations are nowhere visible. The rags and tatters are the most picturesque in the world. Shoes and stockings extremely rare, the children half or quite naked. Few vehicles of any description on the road, yet the country well cultivated and mostly fertile. You are agreeably surprised. At a distance you see a poor distressed-looking object, barefooted, with a gray cloak over the head; as you come nearer you see an intelligent, healthy, laughing face under the cloak, the very reverse of what you anticipated.'

On September 8, 1839, Owen writes to Mrs. Clift from Florence Court, giving her a description of the house and grounds, and among the details he gives are the following: 'There is only one exceptional condition about Florence Court; it is *about twenty barrels of gunpowder*, which, with arms and accoutrements for five hundred men, his lordship informed me, with peculiar satisfaction, he kept for *his boys*, in spite of *Dan*

or my Lord-Lieutenant. If, therefore, we are not blown up or drowned in the passage home, you may expect to see me on or about September 30. This morning we went to church, and after the second psalm my lord turned out of the pew, and, striding to the altar, seized there an instrument, in shape resembling a diminutive warming-pan with half the lid wanting; this he (being churchwarden) presented to each of the congregation, high and low, and traversed therewith the church to the tinkling of half-pence, sixpences, and shillings, which the charitably disposed dropped in; then, returning up the aisle, he fumbled half a crown out of his waistcoat pocket with one hand, dropped it into the copper receptacle in the other, and deposited the same, with the gatherings of the perambulation, on the Communion-table for the benefit of the poor. It would not have been a bad picture—the green coat, white breeches and long yellow leggings, with the spectacles and good-humoured business-like earnestness with which the ceremony was gone through. The sermon was preached by an old friend of the family, who told us this morning he had visited the house in the grouse season for five and thirty years. The Rev. Mr. French, a hale and hearty old man, and a great favourite, is rector of a neighbouring parish in Carlow. He rides up the mountain on a mule, and his costume is far from being unpicturesque; a Captain

O'Kerry and a Mr. Trench are the other guests. I must not forget, in describing the house, to mention the peacocks which for many generations—of peacocks—have adorned it, perched on the window-sills or under the arches of the cloisters; to my ear their wild scream early of a morning is not unmusical. Peat, turf, and wood are the kinds of fuel consumed here, and a huge wicker-basket of turf is placed by the side of each fireplace. . . . I read the last number of "Nicholas Nickleby" in bed the other night.'

On September 13, 1839, he writes to Clift, still from Florence Court: 'I have angled in the river and caught trout; trolled in the lough end taken huge predatory pike; traversed the heath-clad moors and shot grouse. An appetite sharpened by previous fasting, exercise, and mountain air, has enabled me to do ample justice to Irish good cheer, and to carry to bed with the decorum suitable to a Professor the quantum of claret which my lord's guests are under the obligation of swallowing when made free of the house out of King William's Mustard-pot. . . . I may spend a day with Mr. Hawkins at Street, and take a run down to make love to Mary Anning at Lyme, and then post home as fast as stage-coach can carry me.'

In a letter sent by Owen to his sister Eliza on October 18, 1839, after his return to London, he writes: 'I accompanied Lord Cole to his

uncle's, Mr. Owen Wynne, of Hazlewood [Sligo]. This gentleman is eighty-five, was in Parliament with Burke, Fox, Sheridan, &c.; has all his faculties of mind and body unimpaired; drove me, for example, in a curricle and pair over eighteen miles of the picturesque country around his seat. . . .

'Sailed for Bristol [from Dublin]. Studied the Saurian remains in that town, and went on to Mr. Hawkins's, Sharpham Park, near Glastonbury. That worthy and eccentric man of genius had procured me peacocks' eggs for breakfast —no bad things, by the way—and other rarities conformable. I had purposely given him short notice; but I found all his neighbours within twelve miles—one gentleman came from Wells—invited that day to have, according to the card, the honour to meet Prof. Robt. Owen.[7] A clergyman in the neighbourhood returned a brief and indignant refusal to the invitation; and when I arrived I found Mr. Hawkins in the anxiety of rectifying the impression. About fifteen mustered, more than half expecting to see the Socialist. I tarried in my dressing-room to the last minute to shorten the exhibition; but was unearthed at last, and contrived to find one or two conversible beings, and established at length my claims to be regarded as one of the same species. . . . Sharpham Park is the oldest house

[7] The social reformer.

I was ever in. It was the residence of some officer of the Abbey [Glastonbury], and is nearly as old. It has a ghost, and Fielding wrote one of his novels there. Hereafter it will have geologists as pilgrims, for Hawkins has done some wonderful work in the way of disencumbering the old Saurians of their stony shrouds. . . . From Sharpham I went to Lyme Regis, and there I met Buckland and Conybeare. They made me prisoner, and drove me off to Axminster, of which Conybeare is rector. Next day we had a geological excursion with Mary Anning, and had like to have been swamped with the tide. We were cut off from rounding a point, and had to scramble over the cliffs. I spent the next day in Miss Philpott's museum; then went to Charmouth, and so returned to London. . . . You may perhaps have heard something of my late discovery of a fossil monkey[8] in Norfolk.'

On November 28 Owen was back again in London. 'Willy is delighted to get his father back,' the diary relates; 'especially when he got his accustomed ride round the room.'

'*December* 1.—After breakfast R. and Mr. B.[9] sat in the back room with locked doors to keep

[8] 'Description of the Jaw of the Fossil Macacus (Monkey) from Woodbridge,' *Mag. Nat. Hist.* This was afterwards shown by Mr. Ed. Charlesworth to belong to a primitive ungulate, now claimed as one of the ancestors of the horse.

[9] J. S. Bowerbank.

out Willy, who would not have aided any steady experiments with the microscope. Blood discs. Fresh blood from alligator and ostrich.'

'17*th.*—R. read his paper, "Sheppey Fossils," at the Geological Society to-night.'

On January 4, 1840, Owen sent Part I. of his last volume of the Museum Catalogue[1] to the press. The following extracts from the journal may serve as an example of Owen's every-day life at this period :—

'*January* 23.—R. before dinner showed us some of the engravings of teeth figured for his work,[2] showing the beautiful architectural structure which gives immense power to the tooth, at the same time preventing pressure on the pulp. Lord Northampton, Whewell, Buckland, &c., who had never seen anything like them, were much delighted.'

'28*th.*—R. at H.A.C. on guard. He had only about half an hour's watch. They had supper at 11 and coffee at 5 A.M., and spent the night chatting and playing whist. R., though a private, was in the officers' room. The order to keep guard originated with the Home Office. No alarm of Chartists, however, disturbed the tranquillity of Bunhill Fields during the night.'

'30*th.*—First meeting of the Microscopical Society since being fully established. R. had to

[1] *Descriptive and Illustrated Catalogue of the Physiological Series of Comparative Anatomy*, 5 vols, 4to.

[2] *Odontography.*

speak a good deal, and came back tired and hungry. After supper he sat up and finished the Plesiosaurus papers.'

'*February* 10.—Her Majesty married to Prince Albert. We all drank their healths, and went to the illuminations in the evening.'

'19*th.*—To the Hunterian Society oration and dinner. Mr. Bell gave an interesting lecture. R.'s health drunk.'

'26*th.*—Formal announcement of R.'s election into the Athenæum Club.'

'*March* 13.—Professor Sedgwick to tea and microscope. At 9 to Mr. Lyell's, and met there Mr. Babbage, Professor Wheatstone, Bishop of Lichfield, &c.'

'19*th.*—Whewell sent R. proofs of his "Philosophy of the Inductive Sciences" to look over. Drew fossil ichthyosaurus jaw, uncoloured. R. to the Society of British Artists. Came back very tired, having been tried beyond endurance by some recitations and a pair of very tight shoes.'

The April of this year seems to have been an unfortunate month for the animals at the Zoological Gardens.

'*April* 6.—Poor George, the lion, dead. M. Zeitter made a fine sketch of him.'

'16*th.*—The sloth bear found dead in his cage, with his two companions doing their best to eat him.'

'17*th*.—One of the dingos escaped.'

With these subjects ready for dissection, and his Hunterian Lectures, which began on April 21, Owen had his time fully occupied. The subject of the lectures this year was, 'The Comparative Anatomy of the Generative Organs and the Development of the Ovum and Fœtus in the different Classes of Animals.'

With regard to the dissection of animals dying at the Gardens, there was some discussion at this time.

'On June 3,' the diary records, 'affairs were settled satisfactorily at the Zoological Council on the question of the dissection of animals. R. had asked Sir P. Egerton, Lord Braybrooke, and others to attend that meeting. He himself could only look in at the fag end, as he had been at a committee meeting at the College. By the time he arrived he found that an order had been entered to the effect that the Hunterian Professor should be allowed to dissect whenever and whatever he liked when death occurred at the Gardens, and that he is to have precedence over any other person.'

As soon as the Hunterian Lectures were off his hands for the season, we find Owen collecting materials for the second part of his report on British Fossil Reptiles, which was read before the British Association in 1841. That he spared no trouble over this is shown from the following

letter written to his wife from York, dated Tuesday, August 4, 1840:—

'Since I left you I have gone over more ground than I ever did in my life before in the same time. Thanks to my experienced fellow-traveller [Lord Enniskillen], no time has been lost. From Derby, yesterday morning, we visited Loughboro', Barrow-on-Soar, Leicester, Nottingham, and returned to Derby to dinner. You may imagine that such a day, after a preceding night's steaming from London, disposed us both for bed soon after dinner was over. This morning we rose at five, and journeyed by railway to York, where we arrived to breakfast at eleven, after a ride of ninety odd miles. Since then we have been spending some hours in the museum, and have visited the Minster. . . . . Hitherto, I have been disappointed of Saurians; the museums at Leicester and Nottingham were crowded with visitors—working classes. Never saw a better experiment of the amount of danger to be apprehended from indiscriminate admission of English *canaille*, and, so far as we saw and heard, quite successful. All very orderly and all *paws off*; but I found myself the centre of a group wherever I had to take notes of a fossil specimen. To-morrow we start for Scarboro'. We have had lovely weather, and gone most of our journeys by railways. Along that from Derby to York there are divers tunnels—"antres vastes." A party of men at work in one

looked, as they cowered together with their lamps close up by the side of the tunnel, like so many gnomes; the combination of sounds, rattling along at full speed, the rushing of the rapidly displaced air, and the incessant yell-shriek of the steam-screamer, kept up to warn the tunnellers, defies all description. Pitch-darkness, the sparks from the engine darting through the palpable obscure, and the cowering figures, like shadows as we swept past them, left all that imagination could picture of a hurrying off of spirits to Pluto's dread abode far behind.'

'All this while Lord Enniskillen would ride outside, and my apprehensions were lest the engineer of the tunnel might not have calculated for outside passengers of his altitude.[3] I could not help stretching out at the window to catch a glimpse of his head, if still in its right place, as soon as we emerged into daylight. There it was, however, and so far both the travellers are all right.'

On August 6 he writes again to his wife, announcing his visits to Scarborough and Whitby. While at Scarborough he met for the first time Barbara, Marchioness of Hastings, an enthusiastic collector, who in later years sent many fossil remains to Owen for description. His reference to her is characteristic. 'We dined with an old

[3] Owen was six feet in his socks; but Lord Enniskillen was considerably taller.

college acquaintance of Lord E.'s, the Marquis of Hastings, who is at Scarboro' with his wife. . . . A very agreeable evening. The Marchioness is a great fossilist. . . . I have been at work in the museum (Whitby) ever since breakfast, lifting heavy fossils, measuring, sketching, and scribbling till my hand aches, or *Hhs*, as John Kemble would say.'

Soon after, in the same year, the first part of 'Odontography; or, a Treatise on the Comparative Anatomy of the Teeth,' appeared. This great work, begun in 1840 and finished in 1845, consisted of two quarto volumes of 650 pages. It was the result of a series of microscopical investigations, suggested by some fragments of the teeth of the extinct Megatherium and other animals from South America, which were submitted to him by Charles Darwin. These fragments were in a state of incipient decomposition, and in examining them Owen was led to investigate and compare the differences existing in the external character of the microscopical structure of the teeth of every class of animal. This remarkable work, the 'Odontography,' was illustrated by 168 carefully-drawn plates; but the constant microscopical study, combined with the preparation of the drawings for this work, which he was anxious to do himself, threatened him with an attack of retinitis, and this compelled him to put the illustrations in the careful and painstaking

hands of Erxleben and Lens Aldous. 'The wonder is,' as he himself would frequently remark, 'that he had any eyesight left at all.' But even to extreme old age it was exceedingly good, except that he could never endure a bright light of any sort.

After finishing Part I. of the 'Odontography,' he was so much interested in the subject that he immediately started on Part II. in spite of his other work. Writing a short note to his wife (September 23, 1840), he says: 'My hands will be pretty full, with Catalogue, geological papers, and Part II. of my "Odontography."' The end of September and beginning of October Owen was at home, and his wife mentions how he met Guizot at the Zoological Gardens, thus describing the French Ambassador: 'He looks a plain, business-like old man, but very keen-looking, his thumbs stuck in his waistcoat sleeve-holes (*à l'Anglaise*, as they call it). Richard afterwards dined at the Athenæum, and he told me that he had mentioned the little waterworms that I first noticed whilst looking attentively into our glass globe. He said that nobody seemed to know them. In examining them under the microscope we saw three blood canals and an alimentary canal. They are in incessant motion, and work in an oblong hole, from which about half their body emerges, throwing up a rampart of earth round them of a regular form.'

'*October* 8.—At R.'s desire, in the Gardens to-day, the monkeys and the elephants were let out to enjoy the sunshine long before the general time, two o'clock. I have long tried to get some one to see to this, as many of the animals would be the better for it.'

On October 14, 1840, Owen wrote to his wife from Hythe: 'I arrived safely at Hythe, and have been most kindly received and hospitably treated by Mr. Makeson [Mackeson] and his four accomplished daughters and one son; they sent for a violoncello last night, and we had a Beethoven and a Hümmel. This morning I was at work two or three hours at the *great Reptile*. It is not *Iguanodon*, but a kind of huge crocodile.[4] . . . To-morrow I ride over to Folkestone, and Friday I proceed to Hastings, and thence to Mr. Dixon's [5] at Worthing.'

On October 18, 1840, after describing to his wife the journey by mail-cart from Hythe through Romney, Rye, Winchelsea, and over Fairlight Down, he writes from the Royal Oak Hotel, Hastings: 'I shall thus have but one day for fossilising with Mr. Dixon, my geological invitor to Worthing, for I must be in London to preside at the Microscopical on Wednesday evening, having the prefatory history of the Society—part of which I have written—and all

[4] *Dinodocus mackesoni.*

[5] Author of *The Geology of Sussex*, 1850.

its laws, bye-laws, regulations, and ordinances to submit to my Council of State prefatory to printing. So that this little duty, together with the wish to put on record while fresh in my mind the peculiarities of the gigantic Saurian at Hythe, has made me less regret having had a quiet day and a half at mine inn at this place, so pleasant in itself and its recollections. There has been a fine little fellow, rising four, with just little Willie's straw hat and holland over-all, who has made my heart jump higher than usual more than once, as he ran about or dug up the shingle in front of my window. I have had some struggle, too, to keep to my work, and if I had not had the sea in at both senses—eye and ear—I should hardly have had patience to finish the twentieth page of my Saurian memoranda; but this huge fragment of a beast deserved it. It is not an Iguanodon. . . . I had a day at Folkestone, and found out a little brass tablet to Harvey's mother in the church aisle. She is described as a

> "Godly, harmless Woman,
> A chaste loving Wife,
> A charitable quiet Neighbour,
> A comfortable friendly Matron,
> A provident diligent Huswyfe,
> A careful tēder harted Mother."

'I know *one* to whom such an epitaph would be as true as it doubtless was to the mother of the great discoverer of the circulation; and that

*she too* may prove the mother of as good, if not as great a man, is the fervent prayer of her affectionate husband,

'RICHARD OWEN.'

In a postscript to this letter he writes: 'On a wooden tablet which records Harvey's benefactions to his native place—the Church Wardens have had the grace to say, in a parenthesis "(he found out the circulation of blood.)" . . . I proceed now to discuss a goblet of brandy and water for the good of the house, and a pipe of tobacco for my own benefit.'

In this month Part I. of the 'Report of British Fossil Reptiles' was finished. Sir P. de Grey Egerton writes from Oulton Park on the subject:—

*Sir Philip Egerton to R. Owen*

October 26, 1840.

'My dear Owen,—. . . I have just completed the perusal of your first report ["British Fossil Reptiles"], which is glorious. I feel perfectly sure that the terms in which that report is spoken of by those with whom I have conversed, and who are more competent than I am to value its merits, and the public mention of it at Glasgow, in the secretaries' report and elsewhere, must be most

gratifying to yourself as they are to me. I can only say that I feel no further regrets at having been the cause of imposing this burden upon you, and shall always consider that, of my humble efforts in furtherance of scientific knowledge, the most important has been that, if not of causing, at all events of accelerating the production of so valuable a report. I am so much delighted with it that I freely forgive you for christening my Plesiosaur "Old Spooney."'

In November Owen was back again in London. His wife's diary for November 21 mentions that her husband 'brought back with him to dinner Dr. Buckland, Professor Agassiz, and Dr. Mantell, and afterwards entertained them to their heart's content with the microscope. They made some experiments in blood globules. Dr. Buckland's blood irregular, that of Agassiz regular. Dr. Mantell, who stated that he had a very slow circulation, on examination proved to have blood globules of a decidedly larger size than the others. Dr. Buckland was just saying with that droll look of his, "Why, Mantell, you see you have a good deal of the reptile about you," when the news was brought in that the Queen was safely delivered of a little princess, so the discussion was stopped by all the gentlemen drinking health to Her Majesty.'

Nothing afforded Owen more relaxation during his hard work than a visit to the theatre,

as occasional extracts taken from the diaries will have shown. Even during his busiest moments he would go with his wife to see any piece of importance that was being played, and they both numbered many friends amongst the profession. One of his favourite operatic pieces was Weber's 'Oberon,' which, as he has often said, he went to see thirty nights in succession, when it was first produced in London, and further, that he paid for his seat each night. There are full accounts in the diaries of the plays they both went to see. On November 27 is an entry which will serve as a further example:—

'R. and I to the Haymarket Theatre to see Bulwer's new play "Money;" but the bills stated that in consequence of a severe domestic calamity Mr. Macready could not appear, so they put on "Town and County," Mrs. Stirling playing Rosalie Somers delightfully. "Family Jars" was the last piece. Altogether a capital entertainment in spite of our disappointment.'

# CHAPTER VI

1841-42

Hunterian Lectures — Progress with 'Odontography' — British Association at Plymouth, 1841—Report on 'British Fossil Mammalia,' 1842-43—Public Dinner in his Honour at Lancaster, 1842—Offer of a Civil-List Pension, 1842.

AMONGST the papers which Owen contributed to various societies in 1841 may be mentioned (i.) 'Description of the Remains of Six Species of Marine Turtles from the London Clay' ('Proceedings Geological Society'): containing in germ his 'British Fossil Reptiles;' (ii.) 'On the Teeth of the Genus Labyrinthodon' ('Transactions Geological Society'); and (iii.) 'On the Genus Euplectella aspergillum' (Venus' Flower-basket) ('Zoological Transactions').

At the end of January 1841 Owen received from De Blainville a confirmation of the description which he had given nine years before of the pearly nautilus. It is thus recorded in the journal:—

'M. de Blainville writes giving some slight but satisfactory outlines of the anatomy of the

recently acquired French "Nautilus pompilius." R. is very glad that this specimen should have been examined in Paris, rather than by him again, for it has fully proved the accuracy and value of his description of the first specimen. The position of the nautilus with regard to the shell is now proved to be correct in R.'s plate, and De Blainville, who, with one or two others, insisted upon its being wrong, now says: "Je n'ai pas hésité à reconnaître, quoi qu'on en ait dit, que vous avez parfaitement saisi les rapports de l'animal avec la coquille."'

The following incident is recorded in the diary:—

'*February* 26.—Went with R. to see Joanna Baillie.[1] Miss Maria Edgeworth was there. We took Willie with us, who began to fidget after he had finished his tea. Joanna Baillie said to him, "Are you *very* tired of us?" and was delighted to hear him answer honestly, "Yes."'

Of Owen's great affection for his son we have constant evidence in his letters. Indeed, in scarcely any letter written at this period to his wife or sisters does he omit to speak of him.

'*March* 27.—Lord Northampton's evening party. Richard very tired, and thought he would not go, but about eight Dr. Buckland looked in, bag and all, and said, "Oh, you had better come." So after some dinner R. felt better, and they

[1] Poetess, and surviving relative of John Hunter.

started off. He was glad afterwards he went, for Prince Albert was there, and Mr. Gould brought his pretty singing New South Wales parrots.'

Early in April Owen began his course of Hunterian Lectures for the season. 'In 1841,' he writes, 'my Hunterian Lectures were on the functions of the animal organs, and I combined a review of the fossil remains of extinct animals with the osteology of existing species.'

While he was lecturing we find him still working at Part II. of his 'Odontography.' On April 27, as the diary shows, the Introduction was printed.

'*May* 4.—Home from lecture (Glossotherium, &c.) about six. R. sat down at once to make some gambits at chess, as after dinner he had to play the President of the Chess Club, Mr. Lonsdale. R. got one game, which was pretty good considering.'

'5*th.*—R. detained by a Museum committee. The candidates for the studentship were to have pigs this time to work upon for competition. Mr. Stanley thought that half a pig would suffice for each candidate. R. remarked: "I think in the present case, Mr. Stanley, we ought to go the whole hog."'

'12*th.*—To my surprise, R. came home at the unusually early hour of three. It seems he had been dissecting an opossum in spirit, and he felt tired and sick. It was too far gone even for him!

Better after dinner, and went to work on a proof —Marsupials.'

'15*th.* — Prince Charles Lucien Bonaparte here with one of his boys. I never saw a better expression on anyone's face than on that lad's. He listened most attentively to his father's conversation with R. The Prince is now very stout, but has very good features and eyes, and when the pleasant smile and eagerness fades from his face he looks very Bonapartish. He told me that this was his birthday, and that he was now thirty-eight.'

'17*th.* — Lieut.-Colonel Charles Hamilton Smith invited R. to stay with him at Plymouth. It so happens that I know him, for he used to be much at the Cuviers when my father and I were in Paris.'

Owen also refers to this invitation in writing at this time to one of his sisters: 'Cary and I, whc have not journeyed together for a long time, have accepted a kind invitation from Colonel Hamilton Smith to spend the "Association Week" at Plymouth with him. He is a widower with daughters. We then think of visiting Mr. Clift's county, Cornwall. We may perhaps spend a few days with Sir Thomas Acland, whom I met at breakfast at Sir Robert Inglis's the other morning, and who kindly proposed it.' Owen then, in answer to a question of his sister's, 'Why the sea is salt,' says he will ask Whewell when he

meets him in 'Association Week' for an explanation, and continues: 'There was, I believe, a heathen speculation in regard to the problem you have asked me to solve; it was held that all water was originally fresh, but on that day, when Phaeton drove his father's chariot, poor earth became so hot and terrified at his near approach and irregular course, that she broke out into profuse perspiration, the consequences of which are still manifested in the saltness of the ocean.'

The following entries occur in the journal for June and July:—

'*June* 2.—To the Botanical Gardens, Regent's Park. As yet they are only laid out. A perfect desert, no signs of greenhouses or hothouses; one seedy-looking palm under a cover. But there was a good band (2nd Life Guards).'

'*7th.*—Weber's "Euryanthe." Liston, the surgeon, just in front of us. The music beautiful, of course, but a ridiculous want of sense or interest in the plot.'

'*8th.*—Dr. Martin Barry came in from Jersey. He brought two green lizards for me, and some tadpoles (all dead but two).'

'*30th.*—To the Gardens, as R. wanted to see the Cereopsis goose, who has a brood of Chinese ducklings under her charge. We found her by no means a fond or careful foster-mother. The old goose is positively hostile, and bites and snaps violently at the crown of their poor little heads.'

*July 7.*—A sister-in-law of Sir John Franklin came to see me, bringing with her a thing which she had been told was an unborn kangaroo. She was hesitating about bringing such an "indelicate" subject to a gentleman, &c., &c., when I set her mind at rest by assuring her that the kangaroo had not only been born, but had certainly lived for some time, as I soon saw. She told me her sister, Lady Franklin, had given it to her. As it was a Microscopical night, R. was dining at the Athenæum.'

'*20th.*—R. spent his birthday in going over with my father to Kew, in order to examine the collection of Hunterian preparations there, with regard to their coming to the College. R. is very busy now, preparing his "Report on British Fossil Reptiles," Part II., which is to be read in about a week's time at the meeting of the British Association at Plymouth.'

On the 27th of this month Owen and his wife started from London and arrived at Southampton in the evening, where they took the boat to Plymouth. The next day they both visited the 'Geological Section' of the British Association, where they heard speeches from Sedgwick and Dr. Buckland. On August 2, with De la Beche in the chair, Owen read his 'Report on British Fossil Reptiles,' speaking for two hours and a half. Amongst his audience were Lord Northampton, Sedgwick, Conybeare, Sir T. Acland, &c. After

the reading of the report, Dr. Buckland acknowledged Owen's labours, and the interest with which his report had been heard by the audience, in very complimentary terms.

Writing to his sister from Plymouth (40 Park Street), Owen says: 'My report gave such satisfaction that the Association has voted me 250*l.* for the expense of engraving the drawings, and 200*l.* more for another report.'

On the 10th Owen lectured on Fossil Reptilia at Falmouth, and on the 12th he accompanied Mr. Conybeare to the Lizard Point, afterwards visiting St. Michael's Mount and Penzance.

But even in the midst of the keen delight he always felt in new scenery and the beauties of Nature, he still found time to devote to the living creatures around him. He writes to Clift from the Bath, Penzance, August 18, 1841: 'I set off after breakfast, with a teacup in my hand, to hunt for objects for the microscope. Of course a bit of seaweed gave me a world of objects, and among them a minute transparent species of limpet, studded with rows of iridescent azure-green spots, apparently full-sized, but no bigger than $\frac{1}{8}$ inch, in which I have been counting the pulsations of the heart (180 per minute), and watching the currents in the veins, and seeing more of the living machinery of the mollusc than I ever expected to see in that class. . . .'

After leaving Penzance, Owen and his wife

visited Bodmin, a place of special interest to both of them, as being the birthplace and early home of Mr. Clift. In a letter to Clift, dated Bosvenna (Bodmin), September 8, 1841, Owen says: 'We arrived at this place, of equal interest to us both, this morning. About two miles from Bodmin we got out and walked up a long ascent in the road, gathering blackberries off, probably, the same bushes, or their "posteriors," as Mrs. Davenport used to say, that you may have climbed to reach in younger days. Arrived at "Oliver's Hotel," a new construction, six years' standing, and therefore since your time. After dinner our first visit to Post Office, Town Hall, and then to the church—a very handsome structure. First we visited the spot, ten yards to the north-east of the tower, where a slight eminence we fancied, close to the still open oblique path, might indicate the tranquil resting-place of our grandfather and grandmother. My next search was for Betty Oliver, the sextoness, who keeps the key of the church. Betty dwells in Cas Street, and well she remembers when you helped your brothers, that hard winter, to dig away the snow from her mother's doorway and windows: they were blockaded on their side of the way, while yours was comparatively free. The Pharisaical rogues have whitewashed the interior of the church. . . . Mrs. Gilbert's and the poor little infant's monuments we saw with interest; also

that of your old rector, John Pomeroy, M.A., &c., "who died in the desk of the church, while preparing to celebrate divine service before the Judge of Assize, August 17, 1813, æt. 61." In the pews north of the pulpit we detected your initials. Some lazy rogue, whose name they suited, has added his surreptitious surname; but the forgery is obvious—the William Clift who beat all his contemporaries at print-hand has never been surpassed. . . . We visited the site of your old house, where the orchard once stood; now a row of prim cottages covers the ground at right angles to the street. . . . We purpose to return home on Saturday, 11th, when the sun rises at half-past five. On Sunday, September 12, Mr. and Mrs. Owen hope to have the pleasure of Mr. and Mrs. Clift and Master Willie Owen's company to dinner at No. 6 Park Cottages, when a long and most delightful tour through Cornwall will be re-performed, with innumerable and most rare adventures by land, rock, mine, and sea; and the character of divers amiable and hospitable friends will be portrayed.'

On September 11 they returned to the College of Surgeons. Owen was anxious to get the remaining part of his 'Odontography' off his hands to some extent, although Part III. did not appear till 1845. He writes thus to his sister: 'Yesterday, after Trustee meeting was over, I had a chop and cup of tea, and then made

a fair start at the concluding part of my "Odontography." . . .'

The following entries occur in the diary for the October of this year:—

'*October* 22.—R. with Mrs. Yarrell to see a lion at the Surrey Gardens. It used to belong to Lord Waterford, and ran loose in his grounds in Ireland. As it not unnaturally became a nuisance, he sold it. Cross[2] has also a black leopard.'

'26*th*.—R. wrote to-night in answer to a letter from Dr. Buckland, who sent him a pholas in its hole, with the marks of the boring. Dr. B.'s triumph will be short-lived. I can fancy him rubbing his white nose as I have often seen him do, half in vexation and half in merriment, when he reads the reply.'

About this time Owen and his wife saw a good deal of Mr. and Mrs. Darwin, as the following entries in the diary show:—

'*October* 31.—Mr. Darwin here to breakfast.'

'*November* 10.—With R. to Gower Street, to see Mr. and Mrs. Darwin. Mr. D. had his arm in a sling.'

'15*th*.—Went to see Gould's birds—not to be imagined till seen. The great dragon lizard now set up excellently. Strange that the Chinese should have the idea of a creature so much like it. After dinner this evening Mrs. Darwin, Mr.

[2] Of the Surrey Gardens.

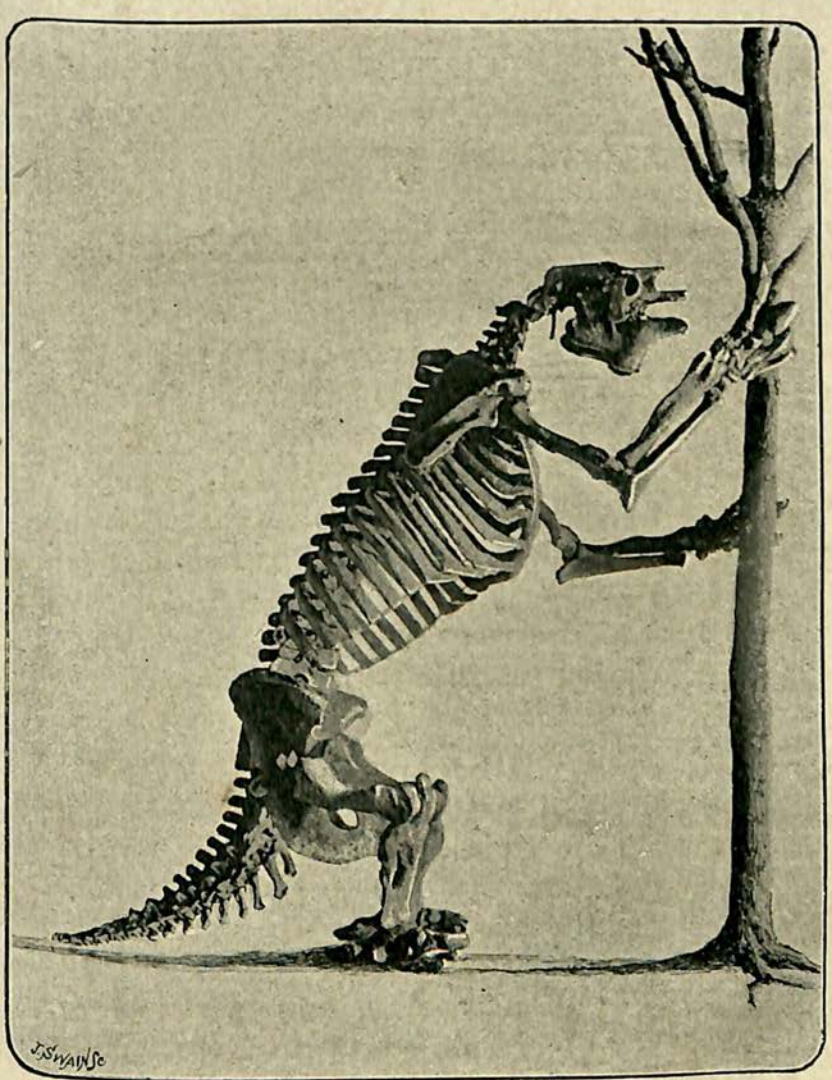
Gould, and his brother came here for some music.'

The remainder of the year 1841 was spent by Owen in collecting materials for his 'Report on the British Fossil Mammalia' (British Association), 1842 and 1843. These reports were the basis of his work, 'British Fossil Mammals and Birds' 1844–1846, which formed one of the beautifully illustrated series on British animals brought out by his friend Van Voorst.

At the beginning of 1842 Owen was working upon his 'Description of the Skeleton of an Extinct Gigantic Sloth (*Mylodon robustus*),' discovered near the city of Buenos Ayres. The habits of life of these extinct creatures were a complete puzzle. Their teeth showed, by their simple structure, that they lived on vegetable food, and probably on the leaves or tender twigs of trees; their huge bodies and great strong curved claws, Darwin remarks, 'seemed so little adapted for locomotion that some eminent naturalists actually believed that, like the sloths (to which they are intimately related), they subsisted by climbing back downwards on trees and feeding on the leaves.' It was certainly a bold idea to conceive even antediluvian trees with branches strong enough to bear animals as big as elephants! Owen conjectured that, instead of climbing on the trees, they pulled the branches down to them, and tore up the smaller trees by the roots, and so

fed on the leaves. With their great tails and huge heels firmly planted on the ground like a tripod, they could exert the full force of their most powerful arms and great claws. The mylodon was also furnished with a long tongue like a giraffe's, which would help it to reach its leafy food with the aid of its long neck. Owen supported this conjecture of his by the following argument.

He remarked that the particular skull he was describing had two severe fractures, both of which were longitudinal, not radiating like a smash in an egg-shell. One had partially and the other completely healed during the lifetime of the creature. These fractures, he stated, could not have been caused by blows from another animal, for they were severe enough to have nearly killed the mylodon, and would have, in that case, inevitably left him an easy and unresisting prey to his foe. But the mylodon had evidently got over the first blow he had received, as the fracture had healed. The probability was, then, that his habit was to uproot trees for the purpose of feeding upon their leaves, and once, when so doing, the tree must have fallen with a crash upon his skull, before he had time to move his huge carcass out of the way, and that this fracture had apparently no sooner healed than the same thing had happened again. Now, the 'cranial organisation' of the mylodon was designedly modified in relation to



MEGATHERIUM AMERICANUM, *Cuvier*.

A great extinct ground-sloth from the Pampas of South America.
The subject of considerable controversy until the appearance of Owen's memoir.

About $\frac{1}{40}$ natural size.

its habits, having 'extensive air-cells introduced between the external and vitreous tables of the skull'—it had, in fact, a double brain-case, and must have often found the advantage of such a possession.

'Certain it is that the habits of life, and the conditions under which the mylodon existed,' did render it liable to violent blows on the head, and it was owing to its well-protected brain-case that they were not, in this instance, death blows.

In the same memoir Owen included a paper on the osteology, natural affinities, and probable habits of the Megatheroid quadrupeds in general, and by the kindness of Dr. Henry Woodward I am able to give a figure of the *Megatherium americanum* in illustration of the group.

'*January* 10, 1842.—A visit from Mrs. Fry—or Elizabeth Fry, as the Friends call her—of prison celebrity. She is sister to Samuel Gurney, and is very like the portraits I have seen of her. Not at all a difficult subject to paint—large, like her brother, with small features and small eyes. She left her carriage at the front gate, walking up to the house without a bonnet, but with a silk cap carried under her costume, which was of a very transparent material. Her manners are ladylike and kind, but, I thought, mildly tolerant and patronising towards R. on the subject of his scientific work. This is not surprising, considering how she has been *fêted* abroad and literally

worshipped at home amongst the Friends, for, though she is Elizabeth Fry, she is still human. She promised to give Willy a book of texts of her own compiling.'

On January 31, Owen went with Conybeare to help to receive Prince Albert and the King of Prussia at the Royal Society.

Owen was at this time occupied in preparing his course of Hunterian Lectures, which was to conclude the series begun by him in 1837. Speaking on the subject of this concluding course, he says: 'I intend this year to lecture on the Comparative Anatomy and Physiology of the Nervous System, and this will terminate the series which I began in 1837.'

In giving a short review of his former lectures, when the course for this year was concluded, he adds:—

'I have the pleasure to see the friendly countenances of some here present who have patiently listened to the whole of this series of lectures, and who may have discerned in it, notwithstanding the long and frequent intervals, the characters of a single and connected scheme of instruction in Comparative Anatomy and Physiology.' He then expressed his great regret that the 'tenants of the gallery,'[3] to whom he was most anxious to impart instruction, were only able

[3] The gallery of the theatre was devoted to students; the body of the theatre to the Council and members of the College.

to attend 'portions of the extensive subject, which the fulness of its treatment compelled him to divide amongst different courses of lectures. Medical students,' he continues, 'have rarely time to attend more than one or two seasons; and I fear that none have been able to serve with us throughout over six years' siege of the city of physiological science founded by Hunter.'

The Professor then remarks on the importance of the study of comparative anatomy to medical students, and says that he is glad that fact is now universally recognised. He advises that the first few years of medical practice, 'in which there is generally a period of leisure,' be devoted to scientific pursuits, quoting Gideon Mantell as an example of what may be done, 'for he has shown that the researches and discoveries in geology and palæontology which have added so many honourable titles to his name are quite compatible with the most extensive, active, and successful practice.'

After his concluding lecture of the season, his wife writes: 'Full attendance at R.'s twenty-fourth and last lecture. He felt naturally much moved at giving his last address after so successful a series.'

During the fine weather Owen and his wife were both constant visitors at the Zoological Gardens. Of their special favourite, Jenny the ourang-outang, Mrs. Owen wrote: 'We saw Jenny have her cup of tea again. It was spooned

and sipped in the most ladylike way, and Hunt, the keeper, put a very smart cap on her head, which made it all the more laughable. Hunt told me that, a few days ago, the Queen and Prince Albert were highly amused with Jenny's tricks, but that he did not like to put the cap on Jenny, as he was afraid it might be thought vulgar!'

In June, Owen went with his wife and child to spend a few weeks with his sisters at Lancaster. After visiting his old haunts, he returned alone to London for about a fortnight, going from thence to visit his friend Sir P. Egerton at Oulton Park, Tarporley. On July 17, Owen writes to Mr. Clift, giving a description of his occupations there :—

'On Wednesday last,' he says, 'Sir Philip had a grand battue of carp and eels, and in simulation perhaps of the Emperor of the Russias—Count Keyserling being his guest—tapped a small lake. Lord Enniskillen and I amused ourselves by wading up to our middles—he having thereby an advantage—in the mud in chase of great carp and pike and eels. The carp shuffled across the mud like "dolphins embowed," as the Heralds say; the pike were more easily caught, care being had of their teeth, but the eels were slippery dogs. After landing the best fish in tubs of water prepared for their transport to stews and ponds, and stranding some

hundreds of bream, roach, and inferior fry, we adjourned to a neighbouring mill to distribute to the assembled villagers the commoner part of the sport. The old people were first served with the largest dace, &c., then those that had helped to excavate and let off the water, and finally the younger folks, lads and lasses, scrambled for the rest. You may imagine Lord E. without coat or waistcoat—shirt-sleeves rolled up, mud to the hips, pitching the fish into the thickest of the active strugglers. I think everybody went off with pockets and hats full. This ended, we proceeded to fish the small river that had received the waters of the pond or lake. Hundreds of eels had gone down into it. It is overgrown with trees and brambles, gurgling down a winding valley with corn and hay fields rising on each side. Under the bosky arch and into the stream waded my lord, with one or two fisher boys with poles. They poked out the eels from their hiding-places in the roots of the trees, while Sir P. and I waded for them in the shallower parts of the stream. Presently we saw the green and yellow monsters coming, gliding stealthily down: then our work was to entrap them in hand nets, before they turned back again; the attempt often ended in a regular chase, the eel slipping through our fingers half a dozen times. Then the roars of laughter, with the Earl's hearty chuckle above all: "Well done, eel!" "There's one gone up;" "Keep the pole out of the way. There's another"—all

this in bright sunshine from ten till five. We caught upwards of 200 eels, which were conveyed to the eel cage. All the small fish—dace, roach, perch, &c.—held a meeting the next day and sent a vote of thanks for our timely interference and deliverance of them from the crafty and predaceous family which had so long tyrannized over the stream.'

On leaving Oulton Park Owen joined his wife and child again at Lancaster. There he went the rounds with his old preceptor, Dr. Harrison, in order to see the patients at Lancaster Gaol, and to revisit the scenes of his early adventures there. Before returning home to London, Owen went with his family to Heysham, and, writing from that place to Mrs. Clift (July 21), he says:—

'Five young urchins have been bathing under my special care and guidance, ranging from Willie the youngest—and who took his first dip under the salt water most manfully—up through six years, seven, nine and ten, the good-natured sons of our host, all at home, holiday-time, and who volunteered to go to the rocks as soon as they heard of my intention to bathe. I carried little Willie in, dipped him and rubbed him well over with the salt water. You may imagine the scene at coming out. The habiliments of two or three of the little folk tumbled confusedly together, and the Professor head-nurse and sole nurse. I never realized the complexity of a child's dress before:

the stays went on under the shirt, and the drawers were put over the arms—as the Highlander served his first pair of breeches. Then pins were missing from collars and belts; however, they all held together till we got home again, and mamma has the amusing task of setting matters to rights in the next room . . . . and listening to the lively account the young gentleman is giving of all that he has so wonderfully and boldly undergone on this first introduction to Neptune.'

Returning to the College of Surgeons on August 2, Owen found a message from Thomas Carlyle to say that he was anxious to make his acquaintance. Accordingly, a week or two later, Owen made his way to Cheyne Row, Chelsea. After sending his name in by the servant, he was shown into a room where Carlyle was having tea. The 'tall man with great glittering eyes,' as Carlyle afterwards described him, made some general remarks, but as the servant had not given his name very clearly, Carlyle abruptly asked Owen who he was. When he had modestly revealed himself and had talked for some time, Carlyle exhibited a good deal of interest, and expressed a desire to be shown over the museum of the College of Surgeons at an early opportunity. Accordingly, the next day he came early in the afternoon, bringing his brother with him, and they spent nearly three hours in the museum looking at the specimens which Owen described to them.

'I have such a dread of the personality of an author destroying in great measure his ideality,' Owen said to his wife after Carlyle's visit, 'that I am pleased to find in this case that it is not so and that Carlyle proved to be, as far as I am concerned, much what one could wish.' Carlyle was always good friends with Owen, and described him as one of the few men 'who was neither a fool nor a humbug.'

It was in this month (August) that London was disturbed by Chartist riots.

'On the 20th we were at a musical party at Arthur Farre's, but had to come away early, as R. was not at all sure that the Chartists might not have taken it into their heads to attack the College, it being a public and useful building; but though there was some cheering and much noise, there was no rioting.'

On August 31 the diary continues:—

'Mr. Lyell here; back from America. He was highly gratified there, and brought an enticing invitation to R., telling him it would be well worth his while from every point of view!'

In September 1842 we find Owen again at Lancaster in order to attend a public dinner given by the town in honour of Whewell and himself. He did not go away without visiting his old school and asking for a holiday. Writing to his wife on the 15th, he says:—

'. . . I heard that old Beetham had had the

lads at the school just as usual and wouldn't give them their holiday till I came to ask for it. So I marched across the churchyard, opened the old school-door, and was greeted by many eager young eyes as I walked up to the old magisterial daïs, and there, after greeting my old master, said that, as Whewell and I had been scholars in old times, it was but fair that those present should participate in our day of rejoicing. Upon which the sanction was given in the old grave tone, and up rose the shout that I have often joined in as the urchins rushed into liberty and open air. Mr. Beetham and I then walked down to the news-room, where many other greetings followed from other friends.'

On September 17, 1842, he again writes to his wife: 'I take up a happy pen this morning to tell you that the dinner concluded to the highest satisfaction of everyone who partook of it and all who were concerned in it. I felt too happy for any other feelings to interfere, in expressing and making clearly understood all that I wished, and I believe ought to have said, in acknowledging this spontaneous and general tribute of affection and respect from all ranks and parties of my townsmen. As we walked in procession to the Town Hall, Mr. Whewell and the Mayor, then the M.P. for the town and myself, and the rest two and two, we were cheered by all the humbler folks, and when we sat down to a most princely banquet—

the chairman, Whewell, and I, on three raised state-seats at the head—we were greeted and complimented in a truly English and manly manner by the ablest men to whom the proposing of the toasts had been assigned. My duties were, besides acknowledging my own toast, the proposing the Lancaster Philosophical Society and returning thanks for your health, which was proposed with Mrs. Whewell's in a very neat speech by Mr. Hornby. Lord Derby sent a fine haunch of venison and a very kind letter, which Mr. Hornby, his nephew, read, in which Lord Derby regretted that his malady prevented his taking the chair to join in doing honour to Whewell, with whom he was not personally acquainted, and to Owen, whom he had had the pleasure to call his friend for some years past.'

On September 19 Owen was back again in London, and soon after had a visit from H. Milne-Edwards, whom he had already met when visiting Paris in 1830. M. Milne-Edwards was accompanied by his pupil, E. Blanchard. Dr. Martin Barry was one of the party, and he brought Owen some letters he had received from certain scientists who had formerly opposed his (Barry's) views as to the double spiral in muscles, and who were now writing to him to acknowledge their acceptance. As Owen had always upheld Barry's ideas on the subject, the latter was anxious that he should see the letters. About the middle of October, Owen

paid two visits which he thus describes in a letter to his sister Eliza written on his return :—

'. . . I spent one pleasant day at a farm-house at Stanway, a pretty Essex village, with John Brown, a widower, retired on a decent competency, known the country round by the name of "Mr. Pickwick," and the closest approximation to Boz's famed type that I have yet had the pleasure of being acquainted with. Like the founder of the Pickwick Club, he solaceth himself with virtuosoizing in antiquities; but, as the immortal Cuvier hath it, "of a higher order" than those which amuse the F. A. S.'s. A good day's work I had amongst honest John Brown's fossils,[4] whose housekeeper at last grew a little testy at the reiterated inquiries "if everything was proper and comfortable for the Professor." My next centre-point from which excursions radiated was the prebendal dwelling of Professor Sedgwick, in Cathedral Close, Norwich, where he is now, with his niece, in residence. Heard him preach last Sunday—the Cathedral crowded, as it always is, when his natural and impressive addresses are poured forth. . . . . I made a day's delightful excursion to Cromer, to visit an old maiden lady [Anna Gurney], who has been deprived of the power of using her legs from early life, and wheels herself about in a

[4] His collections of pleistocene land and freshwater shells and bones are now in the Natural History Museum, South Kensington.

kind of velocipede chair. She is a most cheerful person, as you may well imagine when I tell you that she has saved some men's lives during wrecks on the coast near her cottage. I was told that on stormy nights, when vessels are in danger, she has wheeled herself through the pelting rain or snow to the seaside, and animated the fishermen and others by her example and rewards to exertions, which otherwise they would have shrunk from, but without which the wrecked seamen must have perished. Her attractions to me were a fine collection of the bones from the cliffs and shingle, which she and a sister, now dead, occupied themselves in collecting, and which is now the most instructive one in Norfolk.'

On October 24 Owen received a second specimen of the pearly nautilus. It was sent by Captain Belcher, and was in its original shell. This enabled him to verify his former observations on the subject. The 'Nautilus pompilius' was taken on the following evening to the Zoological Society. Captain Belcher also brought with him a babyroussa (a large species of hog from the Indian Archipelago). 'He says that on the voyage it ate up quantities of the men's brass buttons and chin straps and is none the worse for it.'

An entry on October 30 gives an idea of the price of carriage at that time. A Lancaster friend intended to do Mrs. Owen a kindness by sending

her six sacks of potatoes. She records sadly: 'We had to pay 2*l.* 3*s.* 6*d.* for carriage!'

On November 1 Owen took the nautilus which he had received from Captain Belcher to the Linnean Society, and read a paper there on the subject.

On his return to the College of Surgeons he found, to his surprise, a letter awaiting him from Sir Robert Peel, containing the intelligence that he had advised the Queen to put Owen on the Civil List for an annual pension of 200*l.*

Whitehall: November 1, 1842.

'Sir,—It is my duty to offer advice to H.M. in respect to the appropriation of a public fund which is annually disposable and which may be applied to the recognition and reward either of distinguished public service or of eminence in literature or science. The amount within my control for the present year (so far as science is concerned) is very limited. It does not exceed 300*l.* in the whole, but as I know no public claim preferable to yours I shall have great satisfaction in proposing to H.M., with your consent, that an annual pension from H.M. Civil List of 200*l.* shall be granted to you. Your acquiescence in this proposal will not in the slightest degree fetter your independence. I have not inquired what are your political opinions, and am wholly unaware of them. My only object in making this com-

munication to you is that the favour of the Crown may be the most worthily bestowed, and in the manner best calculated to encourage that devotion to science for which you are so eminently distinguished.

'I have the honour to be, Sir,

'Your obedient servant,

'ROBERT PEEL.

'Professor Owen, F.R.S., &c.'

'As soon as R. had digested Sir Robert's letter,' Mrs. Owen writes, 'he put on his boots again, and sallied forth to our good friend Justice Broderip, and found him just going to bed.

'Mr. B. soon hurried on a dressing-gown, and they agreed as to the manner of an answer, and R. wrote it out when he came back. Before he left, some sherry was poured out on the ground by Mr. Broderip as a libation.'

'*November* 8.—A number of congratulatory letters. One from Lord Enniskillen and Sir Philip. Curious that they should even write in couples!'

Amongst these letters of congratulation there was one from Whewell, now Master of Trinity:—

'My dear Owen,—I was most glad to receive the intelligence which your letter of this morning contains. I hope the substantial part of the Premier's offer will do much; added to your other resources, to place you in a condition to pursue your researches at your ease; and that the well-

deserved honour will have its weight in protecting you from the molestation of those who might otherwise not acknowledge your value. I am afraid I cannot please myself with the thought of having had much to do with this satisfactory event, though I have mentioned your name in quarters which may have considerable influence, but I am quite content to rejoice in what is done, without wishing to have any other concern in it than the sympathy of a friend. . . . .

'Believe me always

'Yours most truly,

'W. WHEWELL.'

'*December* 1.—Dr. Buckland proposed that he and R. should call on Sir Robert Peel this morning. The Premier was out, but they were asked to come again in the afternoon. They were shown into the dining-room looking over a terrace on to the river. Over a quarter of an hour was spent in conversation, which the Doctor maintained chiefly, Sir Robert listening like a clever man and occasionally making remarks. He asked when he might see the museum, and it was agreed he should come on Saturday in a quiet manner.'

'*3rd.*—Sir Robert here with Dr. Buckland. He stayed more than two hours, and was much gratified by his visit. He always asked for the names of the different fossils, &c., that he saw.'

'25*th*.—We paid a Christmas visit to Jenny the ourang-outang. She certainly attempts speech as far as her powers admit. When she is fond of a person, she puts her long strong arms round his neck, and makes a curious noise, like an attempt to utter caressing words—opening the lips and moving them as though trying to make certain sounds. She produces a sort of a murmur, which one might easily translate into kind expressions. To-day she took a fancy, when out of her cage, to look out of the window, and slyly crept along till she got there under pretence of friendship. Hunt pretended to be offended at her not coming when he called, and she ran up to him, put her arms round his neck, whispering to him and kissing him, till he seemed to forgive her.'

# CHAPTER VII

1843-44

Further Evidence of the Existence of the 'Dinornis'—Second Series of Hunterian Lectures commenced—Member of the Commission of Inquiry into the Health of Towns, 1843-46—The British Association at York, 1843—Member of the Literary Club, 1844—Lecture on the 'Dinornis' at the Royal Institution, 1844.

In January 1843 Owen wrote to his sisters on the subject of the expenses, &c., connected with his work on 'British Fossil Reptiles.'

'I am now hastening,' he said, 'the *dénoûment* of my first and probably last speculation in the book-line—viz. my great work on "British Fossil Reptiles." The expenses will be 1,000*l.*, of which the British Association have advanced 250*l.* I print 350 copies, and if I get 200 *paying* subscribers shall clear my expenses, having 150 copies for interest of money sunk and profits. I am sanguine enough to expect no loss. Meanwhile, lithographic and zincographic draughtsmen make frequent calls upon my purse. The pension happily enables me to meet these without difficulty or anxiety . . . . Grace[1] has witnessed a fortunate fulfilment of one

[1] His youngest sister.

of my scientific predictions relative to the existence or former existence—though within the memory of man—of a huge bird in New Zealand. I had a fragment of one of its bones three years ago and ventured to build it up into "a heavier bird than the ostrich but as big;" it turns out, however, to have been much bigger, and has excited, I think, more interest than anything that has occurred in my line. Dr. Buckland, to whom the bones of said bird were sent, and who has made them over to me, partly attributes his recovery to them. He sent me a note this morning which he had received from the Queen's Master of the Household (Hon. Charles A. Murray), who says, after a compliment to me: "The Prince has read your letter with the greatest interest; he desires me to thank you in his name, and if any further discoveries should be made in elucidation of the mystery of this feathered monster, pray let me again have the pleasure of hearing from you and of communicating the information to His Royal Highness."'

In this month Darwin wrote on the subject of his work on 'Coral Reefs' to Owen. In this letter he refers to some preliminary papers of Owen's on the 'Archetype,' afterwards developed into his classic on the 'Archetype and Homologies of the Vertebrate Skeleton,' which appeared in 1848:—

Down, Farnborough, Kent.

'My dear Owen,— . . . I am *much* pleased at your praise of my Coral volume, and am very glad you recommend it to the notice of voyagers. It would undoubtedly be far more suggestive to any one who will really attend to the subject, but for the generality, perhaps, the abstract in my journal would be the most [useful]. . . . I have lately read with *very great* interest all the parts which I could follow in your Report on Archetypes, &c. You may remember that I suggested explanations to the woodcuts. I am not a quarter satisfied yet. You may with perfect justice say you do not write for tyros; but if ever you take compassion (and there is no other claim) on ignoramuses such as myself, you will in every woodcut give the name to every letter or number in your woodcuts, even if repeated 500 times, for just that many times will it make your work intelligible to the ignorant.

'Believe me,

'Yours very sincerely,

'C. DARWIN.'

It was in this month also that a box arrived from New Zealand containing a large assortment of the bones of the dinornis, of which he had already described the 'shaft of a femur' in 1837.

'On January 19,' the diary records, 'we opened the long-expected box from New Zealand,

which arrived to-day. Another is on the road. My father, before going on to the Royal Society, stayed to see it opened. We took out a pelvis, a few vertebræ—two enormous—and the femur of the gigantic bird.'

These bones were first sent to Dr. Buckland by 'a zealous and successful Church missionary long resident in New Zealand, the Rev. William Williams.' This gentleman confirmed the traditional statement of the natives of New Zealand, relative to the huge bones which they brought him from time to time, in regard to the class of animals to which they belonged.[2] 'He has, therefore,' Owen writes, 'a just claim to share in the honour of the discovery of the dinornis, since, while collecting and comparing its osseous remains, he was wholly unaware that its more immediate affinities had already been determined in England.' Mr. Williams, in a letter to Dr. Buckland in 1842, shows that he was not aware of the fact that Owen had received and described the fragment of the femur of the dinornis. 'By means of the specimens first transmitted by Mr. Williams to Dr. Buckland, and generously confided to me by that distinguished geologist,' Owen continues, 'I was enabled to define the generic characters of the dinornis, as afforded by the bones of the hind extremity. By the favour of a like disposition of Mr. Williams's second and richer collection of

[2] *Extinct Wingless Birds of New Zealand*, p. 76.

bones, and from three additional specimens confided to me, evidence has been obtained of six distinct species of the genus, ascending respectively from the size of the great bustard to that of the dodo, of the emu and of the ostrich, and finally attaining a stature far surpassing three of the once-deemed most gigantic of birds.'

Dr. Buckland writes thus to Owen from Oxford on the subject of the dinornis bones:—

'. . . I am now going to write to Mr. Williams, which I have waited to do until the arrival of the second box in its full amplitude of gigantic proportions, which has at length happily taken place, and will, I trust, afford materials for a volume that shall be a fit pendant to your "Mylodon robustus." The Premier and his royal guest were astounded at the height of dinornis. "Exactly," said Sir Robert, "the height of this library," so he had a standard at hand whereby to get an idea of sixteen feet. Happy dinornis, whose bones and giant-strides will not be unknown to posterity, *carent quia vate sacro*. I think it right to desire you to select for the College museum the most perfect and best bones from the second box as from the first; but before I make over my property in the said bones I reserve to myself the power to take such of them as I may wish, either to Oxford to exhibit at a meeting there, or to show them to Prince Albert at any place he may wish to have them

brought for his inspection, as he feels the strongest interest respecting them. It may be difficult for him to come quietly to the College, but I shall try to get this done if it will not excite jealousy among your inmates, whose company would not be desirable. . . .'

The following entries then occur in the diary:

'*February* 2.—Richard to the Geological Society; he was persuaded to go to the "three ones" (111 Jermyn Street), by Sir P. Egerton, who fetched two foaming pots of stout, and brought them in his own hands across to Richard, who stood with the door-key, awaiting his arrival!'

'17*th.*—Richard went before breakfast into the museum to look at Mr. Scharf's enormous diagram of the mylodon, which was suspended from the gallery for inspection and criticism. It is for Sedgwick. A visit from Mr. Darwin, who has much improved in health. After his departure, Mr. Brown, of Stanway, Colchester—the veritable and original Mr. Pickwick, I do believe—came in. He stayed to dinner.'

'25*th.*—Mr. Pratt, the collector of belemnites, here. A most interesting collection of portions of this long mis-known fossil now in R.'s possession. The ink-bags, the striated portions of mantle, and tentacles with hooks, all beautifully clear. In the evening to Mr. Lyell's, taking some music, and R. his violoncello in its great green bag.'

'28*th.*—Characteristic letter from Sedgwick, asking us to hurry up Scharf with his drawing by scratching him with a mylodon's claw.'

At the end of March Owen began his new series of Hunterian Lectures. He describes the scheme of these lectures in the following way:—

'When I was first honoured by the Council with this arduous and responsible office, it seemed to me that the first obligation upon the Professor was, to combine with the information to be imparted on the science of comparative anatomy, an adequate demonstration of the nature and extent of the Hunterian Physiological Collection, and thus to offer a due tribute to the scientific labours and discoveries of its founder.

'The system adopted by Hunter for the arrangement of his preparations of comparative anatomy was therefore made that of the lectures which were to be illustrated by them; and this plan was closely adhered to until the whole of the physiological department of the collection had been successively described, and its demonstration completed, in the course of lectures which I delivered last year. It is, I believe, generally known that Hunter had arranged his beautifully prepared specimens of animal and vegetable structures according to the organs, commencing with the simplest form, and proceeding through successive gradations to the highest or most complicated condition of each organ.

'These series of organs from different species are arranged according to their relations to the great functions of organic and animal life, and the general scheme is closely analogous to that adopted by Baron Cuvier in his "Leçons d'Anatomie Comparée," and in the best modern works on physiology.

'It has been a subject of much consideration with me, having fulfilled, in one respect, the obligations to the memory of the founder of the collection, how to present the general principles and leading facts of comparative anatomy with most profit and utility to my junior auditors; and I trust that the plan which I propose to adopt for the present course and that of next year will enable me to give a complete view of the science within that space, which shall not be less subservient to the illustration of physiology than were the preceding lectures given on the system indicated by the arrangement of the Hunterian preparations.

'It is very true that, by tracing the progressive additions to an organ through the animal series from its simplest to its most complex structure we learn what part is essential, what auxiliary to its office; and the successive series of preparations in Hunter's Physiological Collection strikingly and beautifully illustrate this connection between comparative anatomy and physiology.

'But it is by the comparison of the particular grades of complication of one organ with that of

another organ in the same body, by considering them in relation to the general nature and powers of the entire animal, together with its relations to other animals, and to the sphere of its existence, that we are chiefly enabled to elucidate the uses of the several super-additions which are met with in following out the series of complexities of a single organ.

'But comparative anatomy fulfils only a part of its services to physiology if studied exclusively in relation to the varieties of a given organ in different animals. The combinations of all the constituent organs in one animal must likewise be studied; and these combinations, with the principles governing them, or the correlations of organs, must be traced and compared in all their varieties throughout the animal kingdom. It is in this point of view that I now propose to treat upon the leading facts of comparative anatomy, to discuss and demonstrate the organs as they are combined in the individual animal, and, commencing with the lowest organised species, in which the combination is of the simplest kind, to trace it to its highest state of complexity and perfection through the typical species of the successively ascending primary groups and classes of the animal kingdom. In short, as my previous courses of Hunterian Lectures, agreeably with the arrangement of the Hunterian Collection, have treated of comparative anatomy according

to the organs, in the ascending order, so, in the present course, comparative anatomy will be considered according to the class of animals, and also in the ascending scale.'

But in spite of his lectures and the continuous researches with which he was occupied, Owen contrived to find time for more public services by sitting on various commissions from 1843 to 1849. On April 17, 1843, he was asked by Sir James Graham, M.P. (then Home Secretary), to serve on the committee of the Commission formed to inquire into the best means of supplying large cities with efficient sewerage, under the presidency of the Duke of Buccleuch.

He continued to serve on this Commission of Inquiry into the Health of Towns until 1846, attending frequent meetings at various intervals. The first meeting was held on June 1, 1843, at Whitehall. The report, which was issued in 1845, is signed by the following: Buccleuch, Lincoln, Robert Slaney, George Graham, H. T. De la Beche, D. B. Reid, Richard Owen, Robert Stephenson, Lyon Playfair, and a few others, showing the representative character of the Commissioners. Their work was by no means a sinecure. Towards the end of the year we find Owen making practical inquiries for the report. The diary states that he 'went off one morning at nine o'clock to inquire into the state of health of the men engaged in sewers, &c. He

went also, accompanied by a police officer, into some of the miserable lodgings in St. Giles's. When he came back he was quite distressed at the misery and filth he had witnessed.'

A few days later we find his attention directed to the necessity of a reform in the matter of slaughter-houses in London, although the Special Commission on the Meat Supply of the Metropolis and the State of Smithfield Market did not take place until 1849.

He started off early one morning (we read in the diary), in a dense fog, after breakfasting by candle-light, 'with the desperate determination to find his way to Whitechapel, having it in his charge to examine the slaughter-houses there. He succeeded in his task, and after a hard day's work came back safe and sound, the fog having lifted a little.' In the following week he went with Mr. Hobhouse to Leadenhall Market. There he saw Mr. Scales (butcher). 'Mr. S. says he is willing that the slaughtering should be kept out of London if all butchers were made to do the same. R. dined afterwards with Sir Robert Inglis. Had Mr. Scales up here. R. in character of Commissioner and Inquisitor. Mr. Chadwick also to help cross-examine.'

In May, Owen received a letter from Professor Vrolich, giving an account of his own dissection of the pearly nautilus, stating that he found all the observations made by Owen confirmed. On

June 12 Owen met Charles Dickens for the first time, and a friendship commenced between them which was always maintained. He met him at the green-room of Drury Lane Theatre. The occasion of their meeting is thus recorded:—

'*May* 12.—R. to Drury Lane Theatre, to see H.M. pass to her box. A large and brilliant assemblage there, who wandered about behind the scenes, and when H.M. entered her box all stood on the stage and joined the professionals in the National Anthem. R. stood just behind Miss P. Horton, who as *prima donna* was in the front row, and quite close to the Queen. "As You Like It" afterwards, by H.M.'s desire. Keeley and his wife delightful in that and also in the concluding farce, "A Thumping Legacy," which H.M. seemed to greatly enjoy. R. was much gratified to meet amongst many interesting people Charles Dickens, in the green-room, and found him delightful.'

There is then an entry with regard to the curious publication of Horne's 'Orion:'—

'Bought the new poem "Orion," for which you may only pay the sum of one farthing. A halfpenny or a larger coin refused. One person may not have more than one copy of Horne's poem, and the bookseller, Miller of Oxford Street, will not give change, even for a halfpenny. Richard began the poem with little expectation of being able to get through it, but very soon changed his opinion.'

The diary continues :—

'*June* 22.—R. to King's College. Prince Albert to be received there by the Professors. Mr. Wheatstone's experiment of firing a cannon by the electric spark tried, the wire being laid from Somerset House along the bed of the river to the shot manufactory. Great crowd at the entrance of Waterloo Bridge.'

'30*th*.—To Mrs. Taylor's, to meet Spohr and his wife. Spohr is a very tall, big man, with an innocent-looking, rather inexpressive fair face, and a hideous sandy scratch wig. I was told that Spohr's second marriage had greatly offended his Prince (Hesse-Cassel), who wished him to marry some other lady. Met also Benedict and M. and Madame Moscheles.'

The meeting of the British Association was held in the August of this year at Cork, and Owen attended it. In a letter to his wife, dated August 17, he gives an account of his journey thither: 'I was so lucky as to get a vacant seat on the roof of the mail to Carnarvon [at Gloucester]. The ride is through a glorious part of S. Wales. . . . We passed through two turnpikes that had been visited by the Breakers;[3] one was down, the posts having been neatly sawed through, and the toll-house unroofed; the other gate, twenty miles farther on, was similarly demolished, and the toll-house razed to the ground.'

[3] The Rebeccaites.

On this visit to Ireland Owen visited Waterford, the Groves of Blarney, Killarney, Glengariff, Dublin, and returned to London by way of Bristol, Gloucester, and Derby; but the whole of his letters written during this tour are devoted to the beauties of the scenery through which he was passing. Before returning home he visited Lord Rosse at Liverpool, and writes thus to Mr. Clift, September 3:—

'You may imagine a man with a natural turn for mechanics with ample means of indulging in it. He has not only planned and manufactured, chiefly with his own hands, his stupendous telescope, but also most of the tools and machinery required for making it. He married, wisely, a lady of congenial taste, the daughter of a civil engineer, and, 'tis said, a better mathematician than himself. . . . I spent a week at Killarney and the picturesque neighbourhood with Murchison, Phillips, Mr. Fox of Falmouth, and Forbes.'

Owen then joined his wife, who was staying at Derby, and after spending a fortnight there returned to his work at the College of Surgeons.

In September, Owen sent to the Rev. J. Rowley, his godfather and former headmaster, a copy of the first series of his Hunterian Lectures (1837–1842), which had been published from notes taken by William White Cooper and revised by himself. In Mr. Rowley's letter of acknowledgment, dated from Lancaster, September 4, 1843,

after thanking Owen for his 'volume of most interesting lectures,' he continues: 'They are the more valuable to me as being the production of a friend whom I have known from infancy, and whose career in life I have observed with intense admiration. I sincerely pray that Providence will long protect and preserve your health and life, not only for the sake of your family, but also for your knowledge and skill in science, in which you have with so much honour distinguished yourself.'

About this time Mrs. Owen records the death of their friend 'Jenny,' the ourang-outang at the Zoological Gardens. 'It is a real loss to us,' she writes, 'for we never missed paying her a visit when we were at the Gardens.'

There are then the following entries in the diary:—

'*November* 5.—R. sent round to Mr. Broderip's to ask him to come and see a fine brain stone now in the museum. R. met with it at a dealer's, who has also a splendid specimen of Irish elk. R. is very anxious that the College should have them. Mr. B. was very much pleased with the beautiful coralline when he saw it, and has settled to buy it and present it to the College. The dealer has done his best to spoil the coralline by making it white with muriatic acid, and, of course, making it smell horribly.'

'18*th.*—R. dined with the Geological Club,

and after the evening meeting went to Jermyn Street. Lord Enniskillen, Dr. Buckland, Mr. Murchison, Dr. Fitton, Mr. Broderip, &c. Each obliged to sing a song. Mr. Broderip put in the chair, with Lord E.'s dressing-gown and a disreputable old college cap. R. was "executioner."'

This was nearly the last meeting of the merry geologists at the 'three ones,' as 111 Jermyn Street was called. At a later meeting this year Lord Enniskillen was arraigned before their Court on account of his intention of getting married. In reply to 'a sly question in the corner' of a letter which he afterwards wrote to Owen, concerning a smashed glass at the above entertainment, the latter writes:—

'I declare, upon my honour, and call Justice[4] to witness, that the glass was cracked about midnight, just before our party broke up, in the most mysterious manner. I held it still in my hand, as sober as a *judge*, and had merely placed it on the table with a slight emphasis in harmony with the sentiment which formed the soul of our last libation.'

On November 23 a strange visitor came to the College of Surgeons, in the shape of a North American Indian chief. 'Richard had just come in about six o'clock when there was a ring at the bell and in another minute there suddenly stalked in a magnificent, tall American Indian

[4] Broderip.

chief in full dress—paint, necklaces, and tomahawk, and a red mantle over all; a fine plume of dried red and black elk's hair on the top of his head. I felt rather staggered, but endeavoured to show no signs of it, and so asked the gentleman to sit down in the arm-chair, which he did in a calm, well-bred manner. He was accompanied by a young gentleman, a native of Guernsey, but who had lived some time among the Indians. We were very soon quite at ease with each other. R. said he would take them into the museum, and led the way with a lamp. He showed them some of the most striking objects there by the dim light of the lamp. The Indian seemed willing to be interested and was attentive, but not the least astonished. When he had seen O'Brien he made a remark which, being interpreted, was, "This is large." He also saw the dwarf and the elephant, but was unmoved. I fetched Willy into the museum to see him, and they shook hands most ceremoniously. On returning from the museum the chief seated himself, and we amused him with pictures and such books as Mme. Merian's "Insects," and, what chiefly gave him pleasure, Willy's coloured plates of Natural History. He recognised the different plates of animals, and when we offered him the choice he was much pleased with a leopard and chose that, saying he would be glad to take it home with him. R. ordered up wine, and the chief showed neither

dislike nor any other emotion on taking it. He handled Mme. Merian's great folio with the most perfect knowledge of how to use such a book. No antiquary could have fingered or held a valuable book with more care—not as if it were something he was afraid of injuring through ignorance, but as if he knew its proper value. His eyes glistened when I took down Lord E.'s bronze armadillo from the mantel-piece, though he had not thrown any look of curiosity towards it. When I lifted up the shell of the animal and showed him the two little ink-bottles in it, a shade of astonishment passed over his face, but he quickly suppressed it. His face was distinctly handsome : wide across the eyes and cheeks, rather of a gipsy type, all the face and limbs on a large scale. A bright red spread over the cheeks and round the eyes, black rubbed about the lower part of the face above the mouth, and a row of six white spots down the sides of the cheeks. His hair a brilliant black, and clean. Mr. Robins, his attendant, said he was scrupulously clean in his habits. With his plume he was quite seven feet high. When we shook hands he said " Goo-by," and stalked off wrapped in his red mantle. R. then said that a friend of his told him some days ago of this new arrival, and said that he would get the chief to look in upon him. However, R. thought no more of it till the appearance this afternoon.'

Another visitor shortly afterwards came to the

museum of the College of Surgeons—Miss Maria Edgeworth. Owen had already met her at Joanna Baillie's, and there she had expressed a wish to see the collection.

'Miss Edgeworth,' Mrs. Owen writes, 'is very small—nearer my own height than anyone I ever met with, except, perhaps, Joanna Baillie. There is little to choose between us! It was evident that my appearance caused exactly the same thought to pass through Miss E.'s mind, as I was clearly not at all the sort of person she had expected to see.'

'On December 21,' the diary continues, 'Sir Robert Inglis came to say that he was commissioned by the Literary Club to ask Richard to become a member.'

Early in the following year (1844) Owen received a note from Sir Robert announcing his election into that club.

7 Bedford Square : February 2, 1844.

'My dear Sir,—When six weeks ago I mentioned to you the club dinners of the Literary Society, and ascertained that it would be agreeable to you to join us, I purposely abstained from adding that, as I had thus obtained your assent, I intended to act upon it forthwith. At the following meeting, accordingly, I proposed you, and the Vice-Chancellor of England seconded you; and I have now the gratification of informing you that you were this evening—at a full meeting, including

the Chief Justice Tindal, Baron Alderson, Dr. Southey, Baron Rolfe, the Bishop of Lichfield, Mr. Hallam—cordially elected.

'Believe me, my dear Sir,

'Very faithfully yours,

'ROBERT H. INGLIS.'

Owen gives the following account of his first dinner at the Literary Society in a letter to his sister Maria :—

'I was at the Old Thatched House ten minutes to six, just as Sir R. Inglis was going up the stairs, and received a kind welcome from him. The room, you may be aware, is famous for Reynolds's finest portraits of the original members, some of them in groups—one a beauty, the welcome back given to Cook and Banks after the first voyage ; they are clinking glasses across the table German fashion. The single portraits are all in fancy costume. Our party, as far as I now remember, consisted of Sir R. I[nglis] in the chair, myself on his right as the new member, Hallam on his left, next me Sir Geo. Staunton, then Sir Jno. Barrow of the Admiralty, two other old gentlemen, and Dr. Southey as croupier. Next Southey was Lockhart; the others were Sir J. Westmacott, Phillips the painter, and one more. No judges ; all on circuit. I came out on unicorns and mammoths ; Hallam discussed Lord Derby's claims to the Duchy of Hamilton, which

appear to be undeniable ; and then the conversation merged into who now in England would be nearest the throne through the Tudors, when the Duke of Buckingham, through his mother, direct from Harry VII., was held to be the personage. . . . At half-past ten we broke up.'

It was in this year that Owen began his work —now regarded as a classic—on 'British Fossil Mammalia.' He originally intended to bring it out in monthly parts, but finally determined, acting upon Charles Lyell's advice, to issue it every two months. An entry in the diary states : 'Mr. Van Voorst has agreed to the proposal suggested by Mr. Lyell to bring the work out every two months instead of one. Mr. Lyell further said that one would have quite enough to do to get the first number into one's head in the two months' time, let alone one ; that it certainly was so as far as he was concerned.'

With regard to the first number, Owen received the following letter from Dr. H. Falconer :—

February 3, 1844.

'My dear Owen,—I have seen the first number of your "Fossil British Mammalia." You are the Magnus Apollo in these matters—a whale among the minnows—and those who come after you will take your authority on trust, without perhaps thinking it necessary to refer to the originals in matters referring either to structure

or to the history of discovery.' [Then follows a long discussion as to the date of discovery of the first anthropomorphous remains.]

On February 2 Owen lectured on the dinornis at the Royal Institution. 'He had the bones and diagrams of the dinornis fetched early to the Institution, and after we had arranged them on the table they made an exceedingly fine show. Richard gave a very clear account, in his characteristic style, of all that is at present known on the subject. He made it interesting by discussing the reasons for believing that the different genera of these apterous birds now known to us, are only remaining types of a large creation as proper to an early state of the globe. There was a large and most attentive audience, notwithstanding a great attraction on the opposite side of the street in Mr. Buckingham's opening night of his Association. Faraday had tea ready for R. when his lecture was over, which was a true kindness.'

Shortly after this lecture Sir John F. W. Herschel wrote to Owen, protesting against his spelling of 'dinornis,' as obscuring its derivation from the Greek δεινός.

Collingwood: February 14, 1844.

'Dear Sir,— . . . I saw in the "Athenæum" some notice of your researches on the extinct struthious birds and of the dinornis. May I be

pardoned a criticism on this spelling? The etymology of this word and of Lyell's Pl*ei*ocene and M*ei*ocene rocks points out *ει* as the true spelling. Now Lyell expressly rejects the *e* as contrary to the analogy of the English language. The thing itself appeared to me at the time only a *lapsus*, but as you have followed his example it is time to protest. The French, who never learn Greek and have no notion of what *δεινός* means, will from our spelling pronounce it d*ee*nornis. . . .

'Yours very truly,

'J. F. W. HERSCHEL.'

Owen defended his spelling 'dinornis' by suggesting that if the spelling 'deinornis' were adopted, people would be just as liable to pronounce it 'deenornis' in English, by the analogy of such words as 'receive,' &c.

The following entries then occur in the journal:—

'*February* 8.—The new range of Carnivora houses in the Gardens looks very comfortable, and the animals seem to enjoy their improved situation. There is now a splendid Arctic bear—it only cost 30*l.* Poor Hunt (Jenny's keeper) now has the young lioness and her blind foster-brother the dog to look after. He said to me that he would "far sooner have his poor Jenny." He was so much cut up about her death that he could hardly pronounce her name.'

'*9th.*—Mr. Bransby Cooper cannot begin his lectures as announced, owing to some bereavement. This brings R.'s lectures at once upon him; but he seems rather glad of it, as they will be the sooner off his mind.'

'*19th.*—A gentleman came and left a present for R. in the shape of a guinea, which was affirmed to have been in the possession of John Hunter. Unfortunately, upon examining the guinea we discovered that it was coined in 1798. John Hunter died in 1793.'

We then have an account of Owen's first dinner at Sir Robert Peel's, in a letter which he wrote to his sister Catherine, dated March 10, 1844. 'It was my first visit,' he remarks, 'but not my first invitation.' Among the guests assembled, twenty-five in all, he mentions the American Minister (Everett), Mr. Charles Barry, Sir B. Brodie, Mr. Charles Eastlake, Wilson Croker, and the Dean of Westminster (Turton). 'A quiet sort of conversation with one's neighbours, which after dinner became more general, and merged at last into instances of very old people. Sir Robert said he canvassed, at the last election, an old lady who remembered the Scotch rebels at Derby, and that he had ordered the Queen's bounty to be given to an old Highlander who fought at Fontenoy. Croker slyly added that that was the way to find out many old soldiers who would remember that battle, and he argued

that under the present registration system the instances of people passing a century would be much diminished. . . . Before dinner Sir Robert informed me that he intended to apply 2,000*l.* in aid of the publication of the Natural History collected in the late expedition to the South Seas, and that he wished to be favoured with my opinion on the best mode of applying it to that purpose. . . . I shall communicate in writing my conclusions.'

Not long afterwards, Owen describes to his sister Maria the occasion of his meeting the King of Saxony at Sir Robert Peel's: 'Sir R. Peel will be very popular in Germany when they hear of the nature of the party he invited to meet the King of Saxony—not the great by birth and wealth, but the representatives of the literature and science of the day. It was a proud and gratifying event to me, I must confess, to be included in the dinner list. There was a large accession to the evening party, which included Whewell, with Murchison, Garrett, Sir Wm. Hooker, Brodie, and Lawrence [Sir Thomas], &c., &c. At the dinner . . . were Rogers, Hallam, Sydney Smith, Lord Northampton, P.R.S., Bishop of Norwich, P.L.S., Dr. Buckland, Robert Brown, and myself; the rest were composed of His Majesty and suite. . . . Brown and I went together, and arrived about five minutes after the half-hour; Hallam and another were there, and

the rest soon followed. We had a very gracious reception, and I had time for a little conversation with Lady Peel. . . . About ten minutes to eight a servant came and whispered to Sir Robert, who then left the drawing-room with Lady Peel, and soon returned walking backwards into the room followed by the King and his suite. We fell into a large semicircle, and Sir Robert introduced us one by one to the King. He addressed a few words in French to each. He told me how much his physician, Dr. Carus, had been gratified by my attentions at the museum, and I replied by observing on the high value which we placed upon Carus's discoveries. . . . We broke into smaller groups, I soon joining Carus, who was introduced by his desire to Buckland. . . . Sydney Smith and Buckland soon began to grow jocular, and opened on me about the *big-bird.* "Ah!" said S. S., with reference to some remark on my joy at the safe arrival of the box from New Zealand, "that was Owen's *magnum bonum.*" . . . The evening company had begun to assemble, and the rooms were soon filled by all the names in science and art. I saw Edwin Landseer, Eastlake, and Sir J. Rennie. . . .'

The following extracts from the journal may serve as examples of Owen's ordinary occupations at this time:—

'*March* 14.—R. at the day meeting of the Royal Society. Enlivened the evening when he

got back by reading Chadwick's "Report on Burials."'

'19*th.*—R.'s introductory lecture. Many familiar faces in the audience. The usual dose before lecture, which was given without notes.'

'*April* 4.—Miss Edgeworth came to take leave before going back to Ireland. R. was making ready to go in to lecture when she came in, but he had time to stop and have a talk with her. She admired greatly the professorial gown with its red silk.'

'10*th.*—R. drew the outline of diagram which I am to colour for to-morrow's lecture. Afterwards he dissected a chimpanzee. Willy watched his father dissecting till he himself smelt like a specimen preserved in rum.'

'16*th.*—Mr. Broderip, Dr. Arthur Farre, &c., to dinner. Microscope and music followed, and we finished up by singing glees till nearly one o'clock.'

'26*th.*—R. went this morning at 7 30 to sit the second time to Mr. Pickersgill. Mr. P. came to lecture last week, to get an idea of R.'s attitude, &c., as he spoke. He is to be in the act of lecturing, holding the dinornis bone.'

'27*th.*—To the Royal Institute to hear Faraday lecture on "Expansion by Heat," illustrated by most interesting experiments.'

'*May* 3.—After a hard day's work, R. deep in "Martin Chuzzlewit." My father came in before

going to the Royal Society, and talked to R. without mercy; but R., whose thoughts and attention were so entirely given up to Mrs. Gamp and Jonas, could only answer at random. As soon as my father was gone, we laughed over Mrs. Gamp till bedtime.'

'*May* 6.—R. helped to draw up, and gave a finish to the first Gwydyr House report on Health of Towns.'

'17*th*.—R. to Mr. Pickersgill after breakfast. They spent the rest of the morning together, as R. wanted to see the dwarf, General Tom Thumb. Dr. Hamel here at eleven. Went into the museum with him, and he poked about in his usual way. He is going to be the bearer of R.'s dinornis to St. Petersburg, much to his delight.'

Among the curious applications frequently made to Professor Owen, there was none, perhaps, more strange than a letter he received from a firm of surgeons near Bath on May 17. After apologies for troubling him they write:—

[1844.]

'We have been for a few days actively engaged embalming the remains of the late William Beckford, Esq., of Fonthill Abbey, a gentleman of family and fortune. [Here follows a rough sketch of the process, which consisted in injecting the vessels with an antiseptic, treating the viscera by Dr. Baillie's process and covering

the body with an antiseptic composition and bandages.] Will you oblige us by giving us your opinion what we ought to charge? We are entirely at a loss to know the value, with a family of such wealth, of our process. It has never been done in the West of England.'

From a memorandum on the letter, such as it was the custom of Professor Owen to make, we gather that he 'recommended 105*l.*,' a reply for which the firm 'sincerely thank' him.

We then find Owen again attending Faraday's lectures at the Royal Institution, as the following extract shows:—

'To Faraday's lecture, which was interesting as usual. Saw Mr. Lyell, Sir Charles Lemon, &c. Mr. Guillemard was there, and was sleeping blissfully when Faraday began. He went on napping and bobbing his head till there was an experiment which made some little explosion, which woke him up with a start. He sat looking severely at Mr. Faraday for the rest of the lecture.'

'25*th.*—Sir P. Egerton here. He said he was very sorry not to have been in the House last night, as something was said by Wackley about pensions, and Sir Robert Peel answered it in a speech which was highly favourable to R.'

'29*th.*—In looking over an artist's drawing of a great fish's skeleton in the library, R. noticed *horse's teeth* in some of the sketches!'

'*June* 5.—R. has had the news that he will very likely get a recent hippopotamus to dissect. He is much pleased.'

'*8th.*—To Mr. Faraday's last lecture, and a most delightful one, on flame, spirit, and salt, &c. A short, feeling address to the audience. Place crammed. Had a chat with him afterwards. R. delighted Willy and a little friend of his by lifting them both up at once on his stick and slinging it across his shoulder, like men carry rabbits.'

'*26th.*—R. to a Royal Society meeting, to debate on the subject of bringing out Dr. Falconer's fossils.'

This entry refers to the fauna of the Sewalik Hills, east of the Ganges, which were first discovered in 1834. Falconer, assisted by Cautley, Baker, and Durand, unearthed a sub-tropical mammalian fauna, unexampled for richness and extent in any other region then known. In 1844 a committee was formed, of which Professor Owen was an important figure, to memorialise H.M. Government to make a grant of 1,000*l.* for the purpose of arranging, displaying, and describing these important collections, which at that time were housed in the British Museum and the India House. The enlightened Premier, Sir Robert Peel, responded to the appeal, and the wishes of the memorialists were carried out. The following letter from Dr. Falconer bears on the subject:—

23 Norfolk Street, Strand : June 4, 1844.

'My dear Owen,—On Saturday next at 9 P.M. I am to give another say at the Asiatic Society, on the general bearings of the Sewalik fauna—geographical, climatal, and geological, &c.

'I want to make the occasion a means of acting on the Court through a public expression of opinion, to take up the publication of the Sewalik fossils, and your presence as the leading head in comparative anatomy would be very important aid. Can you afford an hour to undergo another infliction? I shall be done by ten o'clock, and there will be a discussion at the end.

'Forbes tells me that you went last time prepared to have spoken, but the late hour and Lord Auckland's omission to start a discussion left you no opportunity.

'Yours very truly,

'H. FALCONER.'

On June 29, 1844, he writes to his sister Catherine: 'I dined last night at the Geological Club, and sat between Sir John Franklin and Dr. Buckland. Sir John had just returned from his government at Van Diemen's Land. I have been indebted to him for several rare beasts from that island, sent in spirits for dissection. In the course of conversation I found that he had been in the battle of Trafalgar, midshipman in the seventh ship of Lord Collingwood's line. His

captain was killed and he was scratched, but not bad enough to go into the list. Cary and I went last night to a brilliant party at Mrs. Simpkinson's (Lady Franklin's sister), to meet there Buckland, Babbage, Sir H. Ellis, Schomburgk, the traveller from Guiana, Count Strelingkski [Strzelecki], the traveller from Australia, and all manner of notabilities and their wives and daughters, and the last wife (I think the seventh) of Lord Edgeworth, and her son. . . . I have launched No. 4 of the "Brit. Foss. Mamm." and my papers on "Dinornis" and "Belemnites" are both out. . . . I intend, you may rely on it, to read "Coningsby;" but no time now—am at it at 6 A.M., as in the busy times of last year. I signed and sealed the Report No. 1 to Her Majesty on Health of Towns yesterday.'

Amongst the 'rare beasts' to which Owen refers as having been indebted to Sir John Franklin, the following are mentioned in the diary, which continues:—

'*July* 10.—A collection of birds from Van Diemen's Land and Australia. One apteryx skin. A fine Van Diemen's Land native skull, with teeth beautiful. This Lady Franklin brought especially for R., and he carried it to the coach in his white silk handkerchief, to the amusement of sundry.'

'12*th.*—Mr. Barlow came, and kept me in close conversation over an hour. Amongst other

things, he has it at heart to get R. to give the Christmas course of lectures at the Royal Institute.'

'29*th.*—Mr. and Mrs. Paget, Mr. A. Griesbach, Mr. Cooper, &c., here to look at the moa's head (so-called), just arrived. After so much expectation and such fears for its safety after its arrival, it was perhaps a little trying to find that this enormous head proved to be nothing more than the skull of a seal. A bit of a dinornis skull was thrown in.'

'*August* 9.—Went to see "Martin Chuzzlewit" dramatised. As we went to the pit, whilst waiting there R. corrected a proof, and did some more before the curtain went up. Upon the whole a poor show, but Keeley's Mrs. Gamp most excellent, Mrs. Keeley as Bailey good. Nadgett also well done.'

On August 10, Owen saw his wife and child off to Dover. He had so much on his hands at the time that he could not do more than pay them flying visits. His extraordinary capacity for work is continually shown in his letters. In writing to his sister Eliza on August 20, he says: 'I had pledged myself to complete my catalogue for the meeting of Trustees in August, and, through labour early and late, and a good printer, who sometimes knocked off eight quarto sheets in one week, I was able to have the copy complete on their table last Saturday week. I have

since written and sent to press No. 5 of "Brit. Foss. Mammalia," and am now engaged in completing my "Odontography." I wish I could finish it before leaving London. To divert my thoughts and unbend the bow, I ran down to Dover last Friday by rail, and found dear Cary on the beach with Mrs. Soulby listening to the band, and Willie digging away in great force amongst the shingle. I stayed Saturday, Sunday, and Monday, and arrived here to-day about an hour ago.'

On August 24, 1844, in a letter to his wife at Dover, we see Owen as the bachelor in charge: 'I was with Hobhouse inspecting Whitechapel again on Thursday; discussing Indian skulls to-day with little Schomburgk. Bottled off the Tinta yesterday; three dozen and four bottles to my share. All the carpets are now up, and the charwoman comes on Monday.'

To his wife, still at Dover, Owen writes on September 16 a piteous appeal that she will interfere with his washerwoman, who hashad, 'above a fortnight, a valuable assortment, without any symptoms of a return;' and again, on September 19, he says: 'Mrs. Wright has volunteered to go to the laundress's this morning, being in a state of righteous indignation. Just as I had commenced my first cup [breakfast], solacing myself with a chapter on German poets, Mrs. Wright, in answer to a bell, entered with a gloomy, awe-struck expres-

sion, announcing in a whisper—a Frenchwoman! So I had Madame Power instead of Goethe, and heard again the whole history of Argonauts and all the concomitant misfortunes, to which I submitted with great patience, finishing in the intervals of explanations my herring and toast. . . . They are painting—overhead—the ceiling of the library, having done the same to the large room, and the house is redolent! However, I fight against it with counterblasts of putrid penguin[5] and tobacco.'

As Commissioner of the health of towns, &c., Owen was deputed to report on the state of his native town, Lancaster. While there in September, 'busily occupied' with his survey of the town, he writes to Clift on the 28th :—

'. . . Chadwick dined with us last Monday, and we settled the plan of survey of the state of the town, in which I have been busily occupied, with the hearty co-operation of all the most intelligent medical men and builders. I found only the present Superintendent of Sewers rather stiff; he is a stout man with goggle eyes, and had a beard of three days' growth. I give you a specimen of one of his answers. To a query why they had not adopted the oval form of sewer, which had been formerly made in one street, but not in later-made sewers, which had the old square shape, he said, "We never adopt nought" '!

[5] 'On the Morbid Appearances observed in the Dissection of the Penguin' (*Aptenodytes forsteri*). *Proc. Zool. Soc.*

Before attending the meeting of the British Association at York, Owen 'spent another busy week in Lancaster, inspecting all the abodes of the poor and taking notes of the worst cases which admit of relief by better regulations; made myself acquainted with the present drainage of the town and its water supplies, and leaving instructions, to architects for improvement plans and their expense, and to registrars and doctors for tables of mortality and disease.'[6]

*Richard Owen to his sister Eliza*

South Hetton: October 4, 1844.

'The success of the York meeting has completely settled the question of the continued existence of the British Association. . . . Sedgwick told me that the idea I had thrown out in my speech on a new geographical partition of the continents of the earth, in accordance with the extinct animals found in them and other grounds which I have not room for, was good and new.'

During October 1844 Owen was on and off at Lancaster for the purpose of collecting materials for his report on the town. In the middle of the month his wife returned home, to find 'five bóxes' of bones in the hall, and the house free from the smell of paint and penguin.' Four boxes of these

[6] To his wife, October 1, 1844.

bones were from New Zealand and one from China. Owen had no lack of material to examine at this time, as the diary shows :—

'*November* 1.—R. to the London Docks, to look at nine boxes of bones from America. In the evening hard at work on the "Mammalia."'

'6*th.*—Mr. Warburton called to offer R. the presidency of the Geological Society. Obliged to decline, as he had not the time to give to it.'

'14*th.*—R. received two letters from Sydney. A man called Leichardt sends the lower jaw of a great kangaroo-like extinct animal. Also interesting letter from Lord Derby. A kangaroo at Knowsley has been watched till the matter so long in doubt is cleared up. She was seen taking the new-born tiny kangaroo in her fore-paws and putting it in the pouch.'

'21*st.*—R. to the London Docks, to fetch away what there is of the tail and head of the glyptodon. The head, unfortunately, is very imperfect, though the tail is good.'

'*December* 3.—This evening the box of diprotodon bones came from Herr Leichardt. We opened it and found a vertebra, a beautiful half-jaw of a young animal, &c.'

'4*th.*—R. to his *cutter-out*,[7] with some very extraordinary bones from Africa. Two heads of an animal resembling a lizard but with huge tusks from the upper jaw. Going to have them picked

[7] The mason who cuts the fossils out of the stone, &c.

out; then drawn, cast, and coloured, and then to make some sections. R. delighted with them.'

'10*th*.—R. not well, so he lay on the sofa with his fossil heads about him, whilst I wrote from his dictation. Mr. Edw. Forbes came in to name Mr. Green's fossils, and smoked a cigar which R. keeps in the Australian skull—the one which the natives used for carrying water, and has a band of dried grass attached to it for the purpose of carrying.

'Mr. Scharf all this time in the library drawing the glyptodon's skull.'

'13*th*.—At Sir Robert Peel's, Drayton Manor, on Saturday, 14th. Bishop of Chichester, Mr. Wheatstone, Dr. Lyon Playfair, Mr. Stephenson,[8] &c. Saw the business of the Commission (Health of Towns) brought to light there. Sir Robert had his tenants to dinner to meet the scientific gentlemen, in order to discuss some matters of agriculture.'

In a letter to his sister Maria, written from Drayton Manor, December 16, 1844, Owen gives an account of his visit, and tells the following anecdote of the Bishop of Oxford (Richard Bagot) on the occasion of the investiture of Louis Philippe with the Order of the Garter: 'On that day, after dinner, at Windsor Castle, the King of the French sent his regards to the Bishop, who approached him, when the King of the French said: "Sir, I was much moved by the

[8] Robert Stephenson, the civil engineer.

admonition you addressed to me on receiving the Order of Knighthood this day." The Bishop replied that most of the service of our Church was remarkable for its meaning and impressiveness. "Yes," said Louis Philippe, "but I was struck by your charge against entering into war." "Into unjust war," replied the Bishop, repeating the words of the admonition. "True," rejoined Louis Philippe, "but I hold all war to be unjust." . . . We met this morning for breakfast in Sir Robert [Peel's] private breakfast-room. . . . I sat next the Bishop [of Oxford], and asked him whether he would choose King's College or Westminster for a boy. He said, "I advise you to inquire well before you take Westminster," and recommended Harrow or Charterhouse, but Harrow best, as having a very good master and good air. The Sunday papers came in, and the Bishop drew my attention to Sir R.'s earnest perusal of the "Examiner." "You see," he says, "he reads all sides!" . . . This morning (Tuesday) Buckland and I got in a good word for C. W. Peach, who will no doubt get promotion in consequence. . . . It came on to rain, and as I had luckily packed up my microscope I brought it down, and, *à propos* to the question from Lord Villars why cold boiled beef sometimes shines like mother-of-pearl when cut, I promised to show him the fine transverse lines on each component fibre of the flesh, which produce that

appearance by their action upon light. A slice was ordered from the round, and the microscope unpacked and mounted in the drawing-room. . . . I then showed the globules of the blood and explained how they united together to form the fibre; the party round the table consisted of Lords Villars and Aylesbury, Drs. Buckland and Playfair, and Messrs. Stephenson and Wheatstone. Whilst we were in the midst of the exhibition and discussion, Sir Robert entered the library and joined us; they began to explain what we had been seeing, and he sat down to examine the objects . . . He seemed much interested in the subject, and said he must bring Lady Peel to see them. . . . After [lunch] there was a unanimous adjournment to the microscope again, and great amusement was occasioned by examining the blood globules of the different gentlemen. . . . Sir Robert (he always devotes from one to four or five in his study) brought back a bottle of thawed pond water to see if it contained any living infusoria, and was delighted to find the first drop taken up by the point of a pencil swarmed with them, gliding about in the field of view. . . .'

The interest which Sir Robert Peel derived from Owen's visit is shown in the following letter which he wrote to Dr. Buckland:—

'You saw the portrait of Cuvier, and know that I am building a gallery for the reception of

the collection which I have formed of the portraits of the eminent men of my own time. I should very much like to have, as a pendant to that of Cuvier, the portrait of Professor Owen.

'My demand, of course, is only upon the time of those whom I can prevail upon to sit for me, but it is a heavy demand upon one so fully occupied as Professor Owen.

'I am unwilling to write to him directly, for his kindness might lead him to acquiesce in a request on my part which may be inconvenient to him.

'Do you think he could spare the time to sit? He can without hesitation answer you if you will write to him.

'I should ask Pickersgill, who painted Cuvier, to paint the pendant.'

This suggestion was acted upon by Buckland, and the picture was ultimately added to Sir Robert Peel's gallery at Drayton. Sir Robert was anxious that Owen should be painted in a sitting posture, 'whereat poor Pick. was troubled,' Owen writes, 'as sitting will not suit the subject as well as standing, on account of the robe.'

# CHAPTER VIII

1845

Owen's Opinion of the 'Vestiges of Creation'—His Descriptive Catalogue of Fossil Mammalia—Election to 'The Club'—' Refusal of the offer of Knighthood—Visit to Turner the Painter—Meeting of the Italian Naturalists at Naples.

A REMARKABLY advanced scientific book appeared in the year 1844, entitled 'Vestiges of the Natural History of Creation.'[1] It was published anonymously, and for forty years the secret of its authorship was unknown. The book was variously ascribed to Thackeray, Lady Lovelace, Sir Charles Lyell, George

[1] The author of the *Vestiges of Creation* gave a sketch of the geological history of the earth, followed by *Considerations on the Origin of the Animated Tribes*, and endeavoured to show 'throughout the geological history strong traces of a parallel advance of the physical conditions and the organic forms;' 'that the construction of this globe and its associates, and inferentially that of all the other globes of space, was the result, not of any immediate or personal exertion on the part of the Deity, but of natural laws which are expressions of His will;' 'the whole train of animated beings, from the simplest and oldest, up to the highest and most recent, are, then, to be regarded as a series of *advances of the principle of development*, which have depended upon external physical circumstances, to which the resulting animals are appropriate.'

Coombe, Sir Richard Vyvyan, and even Prince Albert, but one of the depositories of the secret, Mr. Alexander Ireland, in a lecture delivered before the Manchester Literary Club in April 1884, stated that it was entirely from the pen of Robert Chambers. The most extraordinary precautions had been taken to preserve the anonymity of the author, who states in one of his letters: 'To escape strife at the expense of losing any honour which may arise from my work is to me a most advantageous exchange.' What Owen thought of this book may be gathered from the following letter which he addressed to the 'Author of "Vestiges," &c.:'—

'Sir,—I beg to offer you my best thanks for the copy of your work entitled "Vestiges of the Natural History of Creation," which I have perused with the pleasure and profit that could not fail to be imparted by a summary of the evidences from all the Natural Sciences bearing upon the origin of all Nature, by one who is evidently familiar with the principles of so extensive a range of human knowledge. It is to be presumed that no true searcher after truth can have a prejudiced dislike to conclusions based upon adequate evidence, and the discovery of the general secondary causes concerned in the production of organised beings upon this planet would not only be received with pleasure, but is probably the chief

end which the best anatomists and physiologists have in view.

'I have cited experiments in my "Lectures on the *Invertebrata*," published last year, in which infusions of dead organic matter, light, warmth, atmospheric air—in short, all the conditions requisite for the supposed spontaneous development of animalcules—were present, but with an adequate contrivance against the possibility of the presence of the ova of such, and no development ensued. I have had personal experience—but the case would be too long for this letter of acknowledgment—of the inadequacy of the preventive means adopted by Mr. Crosse; the like inadequacy of Mr. Weeks's may be inferred from his own description. I have sought in every department of animated nature for unequivocal evidence of the earth and the waters still exercising those delegated powers to which the Mosaic record refers, that rich "bringing forth of the moving creature that hath life" at the earliest periods of the peopling of this planet, but hitherto in vain. The gradation of organic beings is for the most part so close and easy that we cannot be surprised at the idea of progressive transmutation of species having been a favourite one with the philosophic mind in all ages. When, however, you refer the highest species of the *Quadrumana* to the Indian Archipelago, and connect the fact with the origination of man (page

296), you overlook the fact that the highest of all the *Quadrumana*, the chimpanzee, is exclusively a native of Africa. The coincidence will doubtless be highly agreeable to one inclined to base his views on such insecure grounds that the highest *Quadrumana* in the continental metropolis of the Ethiopian race should be black, whilst the orang, in the centre of the Malayan variety of man, should approximate so nearly to the characteristic tint of that variety. These considerations, together with the resemblance of the *chimpanzee's* skull in its prominent superorbital arch and some other characters to the Melanian form of cranium, interested me so much whilst investigating the physiological possibility of the development of the Hottentot from the chimpanzee, without, I believe, the slightest prejudice against such a relationship; but many particulars in the anatomy of both black and red orangs are decisive against such a hypothesis in the present state of physiological knowledge. There are a few mistakes where you treat of my own department of science, easily rectified in your second edition. Thus, on page 333: "The *ray* belongs to the highest and best framed order of fishes. The *myxine* is the lowest, and nearest the *Invertebrata*;" but upon the whole the zoology and anatomy of the work is correct, and near upon the present level. I take the liberty, in reference to the idea and diagram given in page 212, to request your at-

tention to the concluding generalisation in my twelfth lecture, and to that on the "Metamorphoses of Insects," where will be found, I believe, the first enunciation of the true law of the analogies manifested by the embryos of animals in their progress to their destined maturity. I will not prolong this letter by any further remarks that have arisen from the perusal of your work.'

On January 30, 1845, Whewell wrote to Owen inquiring if he had seen 'a book called "Vestiges of Creation," for I am told it is much talked of in London.' He asks Owen's opinion of the doctrines therein set forth, and especially of the statement 'that animals in general may be arranged in a series proceeding from less to more perfect, in such a way that the more perfect in their fœtal condition pass through the successive stages of the less perfect, the characters being taken from the vital centres, the brain or the heart, and the more perfect being the more complex.' Whewell cannot 'imagine' that Owen 'can assent to any part of this scheme,' and wishes to know his opinion as to 'what parts of it are most palpably false in physiology.' He proceeds: 'The first proposition' about the fœtal stages 'we have heard a great deal of lately. Who is the main promulgator of it, and how far do you believe it?'

In reply Owen wrote, February 3, 1845: 'Animals in general cannot be arranged in a series proceeding from less to more perfect in any

way, so many, in different natural series, being on a par; much less can they be so arranged as that the more perfect in their fœtal condition pass through the successive stages of the less perfect, the characters being taken from the brain to the heart.' He gives no definite reply to Whewell's last question.

Whewell wrote to Owen again on February 13, thanking him for his letter, and stating that his reason for asking his opinion was, that 'though the author is very decorous in his language [the book] has been felt by many persons to have a tendency adverse to Natural Theology; and I have been importuned to answer it. This I cannot undertake to do.' He intends, he says, to issue some selections from his 'Philosophy' bearing on Theology, 'and in the preface (without naming the "Vestiges") I shall notice one or two points which have some apparent novelty in the book.' He wishes to quote Owen's authority for various statements; but from a later letter of Whewell's (February 15) we gather that Owen had objected to this, for Whewell says: 'So far as you are concerned, I will submit anything which I write, and you shall see and decide for yourself, as is reasonable.'

Murchison and Sedgwick wrote on the same subject.

*R. Murchison to R. Owen*

April 2, 1845.

'My dear Owen,—The enclosed letter from Sedgwick will explain to you that he is not to be had. In speaking to Lockhart *long ago* on this subject, I said to him that of all persons in this town you were the most fit to review the "Vestiges," *but* that I doubted the possibility of your finding time to do it. Now, however, that the book has passed through four editions and is really taking considerable hold on the public mind, a real *man in armour* is required, and if you would undertake the concern you would do infinite service to *true* science and sincerely oblige your friends. With your facility in composition I doubt not that a day or two would suffice, and your article would completely mesmerise the "Monmouth Street philosophy," as Sedgwick calls it. . . . I cannot say how you would gratify your friends and admirers by this effort, which would entitle you to another niche in the temple of good works in which you already occupy so high a place.

'To be done at all it must be done by a *master hand*; at present, notwithstanding the *on dits* of men of science, the book rides triumphant.

'Ever yours most sincerely,

'Rod. I. Murchison.'

*Adam Sedgwick to R. Owen*

May 1845.

'I have thoughts of writing a review of that beastly book, the "Vestiges of Creation." You are my brazen head, like the one old Friar Bacon used to consult in his difficulties.' Sedgwick goes on to criticise various points in what he calls the 'circular-logic' of the author, and he remarks: 'The marsupials may *resemble* in their gestation the lower class of birds. But is not this mere resemblance without anything like identity, or like a passage from one towards another? True philosophy has to do with differences rather than with resemblances, or at least has to do with both. I want you to clear my fog over one or two points.'

Sedgwick apparently wrote also to Sir Philip Egerton for information, for the latter writes to Owen in June to say that he has no time to give Sedgwick's letter a careful answer. 'Give,' he says, 'old Sedg. an argument or two to level against the "Vestiges" founded on *correct anatomy*.'

It is interesting to find, after reading Owen's own letter to the then unknown author of the 'Vestiges,' that others eagerly sought after his opinions, for the express purpose of confuting the views therein expressed. We may, perhaps, assume that Owen had a certain leaning towards the theories enunciated by Robert Chambers, but

that, at the same time, he did not feel sufficiently convinced to recognise those principles, afterwards expounded by Charles Darwin, which his own genius and capacity for work could not fail to have furthered.

In 1845 Owen first described the remains of dicynodonts[2] from South Africa. These creatures were a new tribe of sauria, the remains of which have since been found in England, Scotland, and India, and have proved of peculiar value in determining critical points with regard to the age of certain rocks.

By the end of the year his 'Descriptive Catalogue of Fossil Mammalia and Aves preserved in the Museum of the Royal College of Surgeons' had also appeared. One cannot but be astounded at the amount of work which he got through during the years 1844–46; it was clearly a period of excessive activity with him, and the wonder is that he retained his health through it all. We see from his wife's diary that a great part of this work was done late at night.

'*January* 7.—R. busy till nearly three in the morning writing paper for the Geological Society to-morrow on Dicynodon.'

In a note to Laurillard written a few months later, referring to the 'age of the rocks containing the dicynodonts,' Owen says: 'I do not believe

[2] 'On Reptilian Fossils (Dicynodon) from S. Africa,' (*Trans. Geol. Soc.*, vol. vii., 2nd series, 1845).

them to be older than our New Red, or, at most, the Magnesian Conglomerates which contain our thecodont reptiles.'

Owen was still acting as Commissioner on the health of towns, and this year issued his report on the sanitary condition of Lancaster. This Commission work frequently took up the best part of a day, as the following entries will show :—

'*January* 16.—R. at Gwydyr House on the Health of Towns Commission; from ten till six.'

'25*th*.—R. to Gwydyr House in the morning. Afternoon spent in going over the House of Commons with Sir H. de la Beche and Dr. Reid in order to see about the best mode of lighting, &c.'

Owen received 100*l*. remuneration for his services as Commissioner, and what he did with it is best seen from a letter which he wrote to Lord Ashley :—

'In response to your Lordship's appeal in aid of the undertakings of the Society for Improving the Condition of the Labouring Classes, I beg to be permitted to contribute to the funds of the Society the amount of the remuneration which I have received as "Commissioner for inquiring into the health of towns." I enclose a copy of a memorandum sent with the sum received.

Richard Owen, Esq.

| | £ | s. | d. |
|---|---|---|---|
| Amount of remuneration as Commissioner for inquiring into the health of towns . . . | 100 | 16 | 0 |
| Property tax . . . . . | 2 | 18 | 10 |
| | 97 | 17 | 2' |

His services on various Commissions in later years were given gratuitously.

The diary continues :—

'*January* 31.—To Faraday's lecture at the Royal Institution. The largest crowd I have ever seen there. Many gentlemen were obliged to come into the ladies' gallery, as they could not get seats elsewhere. After an exceedingly interesting lecture, Faraday said he had a few remarks to make on some new reform laws for the Institution. These remarks were admirably made, and no one could feel offended, although it was a direct attack on those gentlemen who helped to render the ladies very uncomfortable sometimes by filling seats, and often the front seats, in the part intended only for ladies. Wearing a hat in the library was one of the delinquencies, likewise sitting in the seats reserved for the directors, who were obliged by their office and duties to be the last in. Mr. Faraday also remarked that the formation of two currents, caused by certain gentlemen rushing upstairs the instant the lecture was over in order to fetch their lady friends, was not conducive to the comfort of those coming downstairs. Everything taken very well.'

A few days before this lecture Faraday wrote Owen an amusing letter about a three-legged frog which had come into his possession :—

'Dear Owen,—Who cares for bipeds or quadrupeds ? They are as common as discontent,

but I think even you may be interested in a triped which I happen to possess just now, and which, if you do care for it, is at your service. The fact is that in sending for some frogs for my lectures, one of them, a fine fellow, proved to have but one hind leg. The leg is very powerful, and when on earth, or when resistance is afforded to its hold, it is astonishing to see how far this frog jumps by its aid. In fact, as to locomotion, the leg does the ordinary duty of two very well. I do not see any mark of a former wound, and I thought you might be pleased to observe first the frog's actions and afterwards its structure. If so, drop me a note and I will send it to you.

'Ever truly yours,

'W. FARADAY.'

'*February* 21.—Geological Society Anniversary. R. having declined the office of president, is now vice-president.'

'*April* 15.—R. wrote to Willy to tell him of a curious mistake in the old Latin dictionary. The word "alce"="elk," has the extraordinary note that it was a creature "without joints in its legs!"'

'*May* 10.—A great box arrived full of statistics for R. "to cast his eye over." They consist of information elicited by questions put by the Commissioners.'

'13*th*.—R.'s introductory lecture to his Hunterian Course for the season.'

'17*th.*—R. off with Mr. Gould to Woburn on a fishing expedition—an arrangement made long since. They put up at the "Bedford Arms," and drove together in a butcher's cart to a stream about four miles off. Good sport, and plenty of trout caught.'

'22*nd.*—R. very hard at work all day. His "Fossil Mammalia" came in last night with the delectable words "The End" printed, but there is still a great deal to do—Introduction, &c.'

'*June* 6.—R. and I to Albemarle Street at eight to hear Mr. Murchison lecture at the Royal Institution on the "Ural Mountains." Unfortunately, the most interesting part had to be crowded into a few minutes at the end of the lecture, owing to the time.'

By the beginning of July the 'Odontography' was completed, and Owen mentions the fact in a note written to his wife on July 10. 'I found a pile of copies of my "Odontography," looking very grand in new covers and India paper. Your father is now reading the preface.'

Mention must be made of Owen's election this year into the famous club founded by Dr. Johnson and limited to forty members, which is known as '*The* Club.' The date of his election was May 20, 1845. Strangely enough, in this club he filled the place once occupied by Oliver Goldsmith, for, since 'The Club' was composed purely of representative men, and literature was

already represented, Goldsmith obtained his place on the score of his supposed scientific attainments, as being the author of a book, 'Animated Nature,' which was merely a translation of Buffon's 'Natural History.'

At Owen's first dinner at 'The Club' the question was raised by Lord Clarendon whether Cromwell ought to have a place amongst the monuments of the kings and queens of England in Westminster Hall, and was to be decided by each member giving his opinion and reasons in turn. Owen, as the youngest member, had to give his opinion first, somewhat to his dismay. But fortunately for him he was a great lover of Milton, and, having a very retentive memory, remembered his 'Ode to Cromwell,' and so replied that Cromwell already had a monument in men's minds in Milton's words—

> Cromwell, our chief of men, who, through a cloud
> Not of war only, but detractions rude,
> Guided by faith and matchless fortitude,
> To peace and truth thy glorious way hast plough'd, &c.

We have a description of a dinner at 'The Literary Society,' on July 4:—

'It was, as it always is, a very delightful meeting—Sir R. Inglis, Chev. Bunsen, Baron Alderson, Bishop of Lichfield, Sir J. Barrow, Sir R. Westmacott, the octogenarian tutor to Lord Melville, who lives in *Greek*, Col. Leake, the antiquarian of Athens, Mr. Eastlake, Mr.

Maynard, Mr. Gregson, Dr. Croly, and myself. The great work by Humboldt, "Cosmos," came under discussion. You should have Baillière's translation of it. . . . To say that it does not give the richness of the original is only to say that the man who could worthily render the diction of Humboldt is not yet found. . . . Arnold I have almost wholly read; but I mean to buy that remarkable record of a man who could, and dared to, think: a greater rarity than the *moa*.'

'On July 24,' Mrs. Owen writes in her diary, 'Sir H. de la Beche came with a message from Sir Robert Peel to ask Richard if knighthood would be acceptable to him. After talking the matter over with me, R. declined, as I desired. It would not add much to our comfort or respectability, and if the time should come when the collection had become part of a great national museum, then it might all be very well.'

Early in August Owen met Theodore Hook and J. M. W. Turner, at a dinner given by his friend Broderip, who was a great connoisseur of pictures. A few days after this dinner Turner invited Owen and Broderip to see his pictures in his house in Queen Anne Street. Owen's account of this visit is amusing. He tells how, on a very bright August day, Broderip and he walked together to Turner's residence, which was slightly dingy in outward appearance. When they arrived at the door, they waited some time

before their ring at the bell was answered. At last an elderly person opened the door a few inches, and asked them suspiciously what they wanted. They replied that they wished to see Mr. Turner. The door was immediately shut in their faces; but after a time the person came back to say that they might enter. When they got into the hall she showed them into a room, and forthwith shut the door upon them. They then discovered with some dismay that this apartment was in total darkness, with the blinds down and the shutters up. After a prolonged interval, they were told they might go upstairs. Upon arriving at the topmost storey they perceived Turner standing before several easels, and taking his colours from a circular table, which he swung round to get at the paints he required. He was painting several pictures at once, passing on from one to the other, and applying, to each in its turn the particular colour he was using, till it was exhausted.

After showing them all that there was to be seen, Turner vouchsafed the explanation of the treatment which they experienced upon entering the house. He said that the bright light outside would have spoilt their eyes for properly appreciating the pictures, and that to see them to advantage an interval of darkness was necessary. At this stage of the interview Broderip had to leave for some engagement, and then an event took place which Owen declares that none of his

artist friends would ever believe. Turner offered him a glass of wine! It was while they were coming downstairs that he first observed symptoms of an inward struggle going on in Turner's bosom. When they were passing a little cupboard on the landing this struggle reached a climax. Finally, Turner said, 'Will you—will you have a glass of wine?' This offer having been accepted, after a good deal of groping in the cupboard a decanter was produced, of which the original glass stopper had been replaced by a cork, with the remains of some sherry at the bottom. This Owen duly consumed, and shortly afterwards took his leave, with many expressions of the pleasure that this visit had afforded him and a disturbing conviction that the sherry might lurk indefinitely in his system.

Owen had several visits from Turner at the College of Surgeons, and on August 8 Mrs. Owen writes: 'I translated part of the programme of the Munich Exhibition for 1845 for Turner, as he is thinking of sending them a picture.'

On September 1 Owen set out for the Continent, in order to attend the meeting of the Association of Italian Naturalists, which was held at Naples. From a memorandum he sent to Mr. Clift about the forwarding of his letters we gather that he meant to stay from September 3 to 7 in Paris, 8th to 11th Marseilles, 11th to 28th Naples, September 29 to October 6

Basle, October 6 till further advice, Cologne. Of his letters, which are mainly descriptive, one to his son, dated Paris, September 4, 1845, and illustrated with sketches of a van drawn by six horses, and of a fountain, tells all about the King's palace and gardens, where, he says, everybody behaves very well 'and no one plucks flowers.' To his wife he writes on the same day: 'I have not had time till now to write more than one note (for Sir Jas. Graham), extracted from me by Buckland when exhausted by fatigue and past midnight, which is the consequence of dear B.'s incessant activity and determination that neither he nor anyone shall rest till they have seen all that can, should, or might be seen. . . . [At Havre] we went to the Douane to see our luggage passed, and I had nearly been made a *sans-culotte*, the officer insisting on seizing my black trousers because they were new and had not been worn! The incident will probably grace the columns of "Galignani" or "Punch!"' He relates the starting at half-past 5 A.M. from Havre to Caudebec, and a visit by Buckland and himself to Rouen and the Abbey of Jumièges. At Rouen they visited Pouchet and his museum, 'saw all the abbeys and churches,' and reached Paris at five the same day, where they were met by Pentland.

On September 8, in another letter to his wife written from Paris, he says: 'I postpone leaving

Paris until to-morrow morning, in order to avail myself of the meeting of the Institute to-day, at which Dr. Buckland and I take our seats for the first time since our election. Yesterday we went to Versailles to pay our respects to Madame Cuvier and Sophie. We found the dear venerable lady at home. . . . She is rather deaf and shows her great age, but the fine features and the benevolent, intellectual eyes still remain.'

Concerning his visit to the Institute, Owen writes to his wife :—

Steamboat on ye Rhone : September 11 [1845].

'I got up early on Monday morning at Paris, wrote off *slick* a memoir for the Institute, called on Flourens, the Sec. at the Garden of Plants, who had it forthwith translated, and it was read to a large auditory. . . . My communication was on the discovery of the fossil monkey[3] in the newer tertiary deposits of Essex, with the extinct elephant, rhinoceros, &c., the first ever met with in that formation. I exhibited the fossil, and took the precaution before the meeting to compare it (along with De Blainville) with the large collection of monkeys' skulls in the Jardin des Plantes. De B. was quite *en accord* with me, and they regard the matter here as *très important.* Buckland, Pentland, and I met Elie de Beaumont, Omalius d'Halloy, and some distinguished

[3] *Macacus pliocenus*, Owen ; *British Fossil Mammals*, 1846, p. xlvi.

zoologists and geologists at Milne-Edwards' to dinner.'

Sailing from Marseilles *viâ* Leghorn, where the ship stayed long enough for him to pay a flying visit to Pisa, and Civita Vecchia, they arrived at Naples on September 15, 'taking in passengers for the Congress[4] at each port; we numbered at last nearly 300.'

Once settled at Naples he writes long letters to his wife, the first of which is dated September 20, 1845: 'And now, my dear Caroline, that I find myself in the cool quiet of my apartment after the hurry and excitement of this first day of the Congress, I hasten to the enjoyment of a deeper pleasure than any that the events at Naples have given me—a conversation with my own dear loved wife, whom I have often had in my mind during busy and exciting scenes, bearing patiently in her far-distant and comfortless abode her own indisposition, and comforting our dear patient little Willie under his.' After some details of his voyage he refers to the meeting, and says: 'The King[5] was present, and, some flattering allusion being made to him, he rose, and, much to the surprise of all, addressed the meeting; he said (as Prince Canino translated it to me), he deserved no praise, and could not listen to it from his own Minister (the President, who was Minister of the Interior); he felt himself the favoured and

[4] Meeting of the Italian Naturalists.

[5] Bomba.

honoured person in receiving the visit of so many intellectually eminent persons; all that he had done was a duty and pleasure; he only desired to know the wishes of the Congress, he would fulfil them to the utmost of his power; regretted that this was not much, and that he should be more than repaid by the benefit which might be anticipated to this beautiful part of Italy. The Prince observed that that was the most delicate expression, and in the best taste, for by using it, instead of saying "to my kingdom," he made himself one of the assembly. . . . Whilst we were waiting [for dinner] Robert Brown came in, sunburnt and blistered from the effects of an excursion to the summit of Vesuvius.'

While in Rome Owen was the guest of Prince Charles Lucien Bonaparte, and he says, in a letter to Mrs. Clift (October 7, 1845): 'I have seen St. Peter's, the Vatican, Colosseum by sunlight and moonlight, and more than anybody else ever did or could see in so short a time; but the Prince arranges everything, and his horses are swift.'

Before leaving Italy Owen visited Florence, and in his diary writes: 'At Florence I had permission of the Grand Duke to have a copy of the portrait of Oliver Cromwell which hung as a pendant to that of Charles I. in the room or gallery of the Pitti Palace assigned to "Portraits of Great Generals." The copy was made, at the recom-

mendation of the Grand Duke, by Michele Cortazzi.'

On his way back to England Owen stayed a short time at Cologne, where he made the usual visits to the places of interest. At St. Ursula's Church, however, his attention was attracted to the bones of that saintly lady's virgin companions, many of which he very soon discovered to be those of horses and other animals.[6]

Owen did not reach London till November 5, owing to the 'fogs on the Rhine,' which delayed him two days.

On November 11 we find him busily at work again, for he writes to one of his sisters from the College of Surgeons: 'Since my return I have prepared for press the No. XI. of my "Brit. Fossil Mammals," which I hope you will receive at the beginning of next month, and I have made some progress with the final number, so *that work* will be completed by the end of this year. I have next to write and print the volume on "Vertebrated Animals," which will complete my Lectures on the Comparative Anatomy of Animals generally. I intend to lecture on the Vertebrata next spring, so the same work will serve for both purposes. These labours don't depend on brightness of sky, and I find a vast consolation in them for the great change between October in Italy and

[6] The tradition concerning these bones will be found in *Murray's Handbook for North Germany.*

November in London. Indeed, I have rather enjoyed than otherwise one or two typical fogs which have lately enveloped us, according to the custom of the season. . . . I dined yesterday with Sir J. Lubbock, Friday with Professor Ansted, Thursday with bachelor Cooper (Wm.), Wednesday with Justice B. [Broderip], and Monday with the Worshipful Company of Apothecaries in their ancient hall. . . . Just before dinner to-day a letter from Dr. Buckland brought the news—to our great pleasure—of his presentation to the Deanery of Westminster.'

On December 1 we find an entry in the diary stating that the Copley Medal was voted to Owen at the Royal Society on that day, but that he could not receive it, as it was voted to him while he was still on the Council. 'The medal was to be given at 4 P.M., and he was on the Council till 5 P.M. It was suggested that the medal should be given to the person whom R. should propose. On this he proposed Theodor Schwann.'

By December 18 'everything connected with the "British Fossil Mammalia and Birds" was completed,' and on the 25th the whole work was received in type from Bentley's.

As soon as the complete book appeared Owen sent a copy to Dr. Gideon Mantell, who wrote the following letter of acknowledgment:—

'I thank you most warmly for your invaluable present, and sincerely congratulate you on the

completion of this new and imperishable monument of your genius, talents, untiring industry, and successful research.

'How I wish I had the abilities, the means, and the leisure to bring out such a volume on the flora and fauna of the country of the iguanodon! But, alas! I must be content to have obtained a distant glimpse of that "Land of Promise," which more fortunate and worthier cultivators of natural science will enter and explore. . . .'

# CHAPTER IX

1846-47

Owen's proposal of a National Collection of Fossil and Recent Comparative Anatomy—The British Association at Southampton, 1846, and at Oxford, 1847—Literary Work—The Rajah of Sarawak at 'The Club,' 1847—Member of the Commission of Sewers—Foundation of the Palæontological Society, 1848.

A SCHEME which Owen had very near at heart was the furtherance of the growth and utility of the collections under his charge and those at the British Museum, and the following copy of a letter which he addressed to Sir Robert Peel shows that he lost no opportunity of advancing his plans:—

*Richard Owen to Sir R. Peel*

Royal College of Surgeons: February 13, 1846

'Dear Sir Robert,—The report [on the Hunterian Museum] which you will hear tomorrow is limited to the statement of the department of the Physiological and Comparative Anatomical Museum which requires increase; and of the extent of space which would be required for the display of such a museum if it were

brought up to the present state of comparative anatomy, so as to fulfil the objects and merit the character of the natural exposition of those works of the Creator which are the subjects of that science.

'Should the Trustees deem the subject one worthy the attention of Government and meriting a repetition of the aid it formerly received, the following are the dates and sums voted for the establishment of the actual museum:—

'In 1799 Parliament voted 15,000*l.* for the purchase of the Hunterian Collection of Comparative Anatomy.

'In 1806 Parliament voted a further sum of 15,000*l.*, in aid of the erection of an edifice for its proper display and arrangement.

'In 1808 or 9 a third grant, of 12,500*l.*, was voted in aid of the completion of that edifice.

'Since that period comparative anatomy has received no further pecuniary aid from the State.

'The experience of the last six years has convinced me that a national collection of the organic mechanism of animals (if the Hunterian Museum is to represent and fulfil the purposes of such collection) can only keep pace with the science, and with the required applications of such museum to physiology, zoology, and geology, by the aid of an annual grant from Government analogous to that which has been made in aid of

the public expositions of zoology at the British Museum, of botany at Kew Gardens, and of geology at Craig's Court, for which latter collection a new museum is now in progress of erection. Such annual grant, if the importance and various applications of comparative anatomy be deemed just ground for meriting it, *ought to be applied to the maintenance of the museum, under the control and direction of the Trustees.*'

Owen was of opinion that the utility of the collections at the Hunterian and British Museums, and the Museum of Practical Geology, would be greatly enhanced if these collections could be combined. He was convinced of the importance of studying fossil and recent animals together—a question which has formed the subject of consideration of the most eminent scientists at the present day.

Sir William Flower mentions that as early as January 6, 1842, Owen reported to the Council of the College of Surgeons on the expediency of combining the fossil and recent osteological specimens in one catalogue as well as in one museum series. His argument was thus summed up in the Report: 'The peculiarities of the extinct mastodon, for example, cannot be understood without a comparison with the analogous parts of the elephant and tapir; nor those of the ichthyosaurus without reference to the skeletons of crocodiles and fishes. The most useful portion of such specimens in the

museum is, therefore, between those series of skeletons of which they present intermediate or transitional structures.' This excellent plan, though approved by the Council, and carried out in the museum, never appeared in print.

*Lord Francis Egerton to Richard Owen*

18 Belgrave Square: March 27, 1846.

'My dear Sir,—I have a strong inclination to take some opportunity after Easter of moving for a committee of inquiry into the state of the various collections of the British Museum. My general view of the case is this. Books and antiquities are accumulating there at a rate which must soon raise the question of further and very extensive accommodation. For the moment, perhaps, space enough is left to allow of the whole subject being considered without the hurry of immediate pressure.

'This, therefore, seems to me a fit and convenient juncture for considering whether it may not be possible to effect a great and salutary rearrangement of the public collections, founded on the simple and intelligible principle of the separation of mind from matter, placing in one department everything which concerns intellectual man, and in one or more other departments everything else.

'If it could be feasible to make incidental

to the adoption of such a principle the union of the fossil collections of the Museum with those of the College of Surgeons, the advantages to science are too obvious and numerous for present discussion. The difficulties in the way are numerous, and I fear insurmountable. If you have ever thought on the subject sufficiently to devise even the outline of any practical scheme for the purpose, I should be very thankful for any communication on the subject as confidential as you might wish to make it.

'Believe me, very faithfully yours,

'F. EGERTON.'

*Richard Owen to Lord Francis Egerton*

College of Surgeons: March 27, 1846.

'Dear Lord Francis Egerton,—Your letter has revived a hope in me on a subject which I have had at heart for some years, but about which I had begun to despond: a remedy for the increasing anomaly of separate collections of natural objects, which, as at present disjoined, fail to illustrate the order and laws of Nature, and consequently are wanting in that which best justifies the expenses of collecting, housing, and arranging them. The first and most obvious practical remedy that suggested itself was that to which you refer—viz. the combination of the fossil skeletons at the British Museum with the recent ones at the College of Surgeons. It seemed the

most practicable because the fossils at the museum are not, like Sloanian and Banksian Natural History specimens, special bequests, but have accumulated gradually round a nucleus of a small but choice collection of minerals, and the chief augmentations have been by Parliamentary grants for the purchase of the two collections of Mr. Hawkins, the collections of Dr. Mantell, Mr. Koch, &c. Of all the Natural History departments in the museum, I believe this to be most out of place there; that its removal would be opposed by fewest difficulties, and that the space required by such removal would be most valuable for the legitimate objects of the Museum.

'What I have done towards preparing the way for the reception of such an addition to the Hunterian basis of a national collection of comparative anatomy is as follows:—

'I should premise that the portions of the College funds assigned to the museum have been applied during the last six or seven years almost exclusively to the increase of the Surgical Department. With great difficulty and by personal canvass I have carried the purchase of a rare object of comparative anatomy now and then. At length the Pathological Museum overflows, and is made to encroach on the Comparative Anatomy, against the further extension of which want of space is added to the argument of want of funds. Mr. Barry [afterwards Sir Charles] is called in, and

recommends all that present space permits—a small additional room at an estimated cost of about 3,000*l.* I take this opportunity to renew a proposition to the Council which on former occasions has been distasteful, involving an application for Government aid, to be applied to the increase of the museum under the control of the Hunterian Trustees, coupled with facilities of admission to the male adult public. Having discussed the subject with Sir B. Brodie and two other influential members of the Council, they admit the futility of wasting the College funds by expenditures which would give only temporary relief to pressing inconvenience, and the Council call upon me for a report. In that I propose that they should consider the question of museum enlargement in the light of its adequacy to the reception of a national collection of recent and fossil comparative anatomy; to look to Government for the requisite funds; to consent to resign to the Trustees the control of such funds, and to be prepared for the reception of the national collection of fossil comparative anatomy if offered; and to submit the whole to the inspection of the male adult public on the same days and hours as those on which the public are admitted to the British Museum.

'The Council have accepted my report, are willing to agree to such an arrangement, and have referred it to the Hunterian Trustees. The Trustees have memorialised the Treasury, but,

Lord Northampton informs me, without success. The case is briefly this: Parliament recognised the principle of a national or public collection of comparative anatomy by purchasing in the year 1799 that left by John Hunter, but transferred the expense of maintaining and augmenting it, according to the needs of the progress of the science, to the College of Surgeons, voting to the College a sum in aid of the building for the lodgment of the museum. The sum total granted by Parliament for the original purchase and the building was 42,500*l.* Half a century has now nearly elapsed, and the College of Surgeons has duly fulfilled, without further aid, the terms on which it accepted the Hunterian Museum, and has greatly augmented it, especially in the Pathological Department. But the Comparative Anatomy has by no means kept pace with the progress of the science, and is very far behind the collections at Paris, Leyden, and Berlin in the series of skeletons. It seems not unreasonable to think that a collection which displays the interior organisation of animals should have a claim for an annual grant from Government for its preservation and increase equal to that which is assigned to the collections of exterior zoology. The specimens of divine mechanism from which a Ray and a Paley have reduced so many beautiful illustrations of final purpose may be expected to have at least as much influence in humanising and improving the tone

of mind of a common visitor as the beauty or strangeness of the outward forms of animals.

'As to the expense: if the fossils are to remain and to be arranged, as they should be at the British Museum, that must be incurred to meet the needs of this and of other departments; and the question is whether the public and science would not be the better served by expending so as to combine and concentrate collections now unnaturally dissevered, and thereby gain space for the more legitimate objects of the British Museum. Lincoln's Inn Fields is as central a position as Great Russell Street; Spode's great premises extend from the Square to Portugal Street, in close contiguity with the College.

'I would gladly devote the years that may be spared me in systematically arranging and expounding both by catalogue and lecture, as heretofore, in regard to the Hunterian Collection, such a proposed worthy national collection of comparative anatomy.

'Although the proposed combination and reorganisation of the collections of recent and fossil comparative anatomy would be a great good, it is not the best which could be done for the great end which your Lordship has in view. But the apparently best possible improvement always appears Utopian and impracticable when it is broached. I have indulged in speculations on a concentration of all zoological illustrations—living,

dead, exterior, and anatomical—in one great connected establishment.

'All the recent and fossil zoology of the British Museum would come to this. The mineralogy would naturally be transferred to the Government Museum of Economic Geology, soon, I hope, to develop itself into our National School of Mines. The British Museum would then be left free for the full extension of the departments which concern intellectual man. But I fear I have trespassed already too far on your patience; any further information I may be able to give will be most readily at your service, and I remain, dear Lord Francis, very faithfully yours,

'RICHARD OWEN.'

Owen had one or two interviews with the Premier with regard to this scheme. 'On March 29 R. went by appointment to Sir Robert Peel's, in order to impress upon him the necessity of the College having Government help if they are to carry on the thing properly, or else that the collection should be made part of a great whole. He says the Premier looks terribly overworked.'

A visit to Dr. Buckland in his new residence as Dean of Westminster is thus described: 'We found the Doctor almost lost amidst heaps of boxes, packages, and lumber — the children delighted with the move. The Deanery is a dark, rambling place. R. raced about after the

Dean's unwearying black legs, through great big rooms, and then out on the leads, where the Doctor said you could get a capital view of the fireworks at Vauxhall Gardens. He showed us some dreadful places where the Westminster boys were accustomed to climb in order to get out of bounds—it made me giddy to look at them. The Dean brought out a South American monkey, called "Jack." He looked ferociously at the strangers, and shrieked and showed his teeth; but when Mr. Liebig (Baron Liebig's son) came in, Jack jumped down into my lap and settled down comfortably.'

Owen had the same sort of interest as Dr. Buckland's son, Frank Buckland, afterwards exhibited in visiting strange folk and curiosities of his own species.

'*April* 4.—After lecture,[1] R. went to see "General Tom Thumb," by appointment. Came back astonished.'

'6*th*.—R. went out to see an extraordinary case of a man's tooth growing right through his cheek, and curving up like a walrus's tusk.'

'11*th*.—We saw Pomāra to-day at Mr. Gould's. He is a fine boy about fourteen, and most gentlemanly in manner, speaking perfect English, although he has only been two years at a school in Sydney. His grandfather is alive in New Zealand. Father and mother both dead.'

[1] Hunterian Lectures, which were continued as heretofore.

At the end of this month the portrait of Cromwell which Owen had had copied from the original in the Pitti Palace at Florence arrived at the College of Surgeons. As the original had been painted in Cromwell's lifetime for the then Grand Duke, this portrait was considered one of the most trustworthy likenesses of the Protector. Carlyle had been looking forward with some eagerness to seeing the portrait, and as soon as it arrived both he and his wife came over to see it. The diary thus records his visit :—

'Mr. Carlyle has a portrait of Cromwell, but in quite a different style; he greatly admired our picture, and studied it attentively. It is curious how like his books Carlyle's conversation is. He grew very eloquent when telling us of the way in which he was plagued by people who would insist upon sending him their books. Young ladies especially often wanted his opinion on their poetry. "I hate poetry," he said comically. I asked him if he hated Horne's "Orion." "Ah," he said, "Horne's a clever man." We walked about in the museum, looking chiefly at fossils.'

'3*rd*.—More people to see Cromwell. He has held quite a levee.'

*Prince Charles Lucien Bonaparte to Richard Owen*

Rome: June 29, 1846.

'My dear Friend,—I am really ashamed of myself for not having as yet answered to such a friend and master! Your excellent letter of Milan reached me in proper time, and caused great *joie* in all my family, as you may have heard from our common friend Pentland, who can truly take charge of our sincere wishes, and made me feel less weary among my sufferings and business about my apparent neglect of your friendship. But you are as busy a man as myself (I can't say more), and you will know how time passes with us! In how many things do we not sympathise! Your deep attachment to your family. . . the philanthropy I should like to imitate! the footsteps I should be so proud to follow!!! are all ties that will always strengthen the feelings I vowed you from the very moment I enjoyed your acquaintance. Italy you *must* visit again! and visit it with your wife and your dearest child. I cannot hope to see you at Genoa, but will amicably calculate on some of those fine labours, or at least interesting letters which you so well know how to write for your friends and *écoliers*. . . . My wife is now quite well, but I cannot say so of my poor legs, which are as

bad as ever, and have prevented me from working as I could have wished to do. . . .

'I remain in great haste, yours for ever,

'C. L. Pr. Bonaparte.'

On July 15, 1846, Owen attended a Mansion House dinner, and in writing to his sister Kate an account of the ceremony mentions: 'I had Professor de Morgan on one side and Dr. Budd on the other, Capt. Sir James Ross opposite, and not far below him D'Israeli, Bowring, and Monckton Milnes. The chief peculiarities of the feast were the grand calling-over of all the 200 guests after dinner, to whom my Lord Mayor drinks in a loving cup. Then go round said goblets, with the usual old ceremony. The toasts followed, with flourish of trumpets—all very grand, as our little books used to say when I had not dreamt of invitations from Lord Mayors.'

In August Owen went over to Ireland, and was again a guest at Florence Court (Lord Enniskillen's). This visit was chiefly for pleasure, but much interest was centred in the Florence Court collection of London Clay fish remains. He sends in one of his letters a message to Agassiz that he must not think of completing his great work on 'Poissons Fossiles' without seeing the specimens preserved at Florence Court. His musical accomplishments were always much appreciated in this house, and he writes to his wife, August 26, 1846:

'Lady E. has an almost professional extent and power of voice, chiefly exercised in the songs of the last Italian school. The young ladies sing duets and national songs. No violoncello could be found in *the whole county of Fermanagh*; so I transposed the accompaniments of two German duets (voice and violoncello) for the flute, and they have gone off very well.'

Before the meeting of the British Association, which was held this year at Southampton, Sir Roderick Murchison, who was to be President, wrote a letter to Owen, in which reference is made to a quadruped known as the 'fossil fox,' the complete skeleton of which Murchison found in the previous year in the great tertiary deposits of Oeningen in Switzerland.

'. . . The so-called "Molasse" is as great an opprobricism in geology as "Grauwacke" was before I split it up and decimated it.

'If the fox really approaches very near to the existing *Vulpes*, that evidence, as well as the forms of the leaves, insects, and fishes, would seem to make the deposit younger than Miocene properly so-called. . . .

'P.S.—In my discourse at Southampton I intend to dwell as much as possible (seeing that all former Presidents have without exception blinked it) on the Natural History proper discussed by the Association, and in this estimate the researches

and splendid results of yourself, Agassiz, and Edward Forbes will form a fine base-line for a geologist who desires to show the solid foundations on which his science rests.'

In a letter dated September 11, 1846, Owen gives his wife an account of the proceedings of the British Association :—

'Yesterday evening Sir R. Murchison spoke his address. Prince Albert and a brilliant suite, with Lord Palmerston, honoured the meeting with their attendance. There was only room for the Presidents of sections and distinguished foreigners on the platform, where, after the address, the Prince spoke or bowed affably to each of us. . . . Tell Broderip that, viewing the galaxy of stars with which our President was surrounded last night, the Prince on his right, and thanks proposed to him by the Foreign Secretary in a flattering speech, it seemed a veritable apotheosis of Murchison.'

At this meeting Owen was President of the Zoological Section, and he writes to his wife (September 14): 'Lyell told me that Herschel was so delighted [with Owen's address] that his expressions and manner were like those of a child, most of the generalisations respecting our *old* mammalia being quite *new* to him. Buckland, Agassiz, Lyell, and Murchison spoke after I had ended. . . . Next morning (Saturday) Sir Philip

[Egerton] and I joined the *Red Lions*[2] in a yacht belonging to a Liverpool member, who has a large fortune and has fitted his vessel out for the purpose of dredging and otherwise investigating the Natural History of the deep. We had a delicious day; just the right breeze. Our party consisted of Professor Clarke (Cambridge), Lyell, Agassiz, Ansted, Robt. Ball of Dublin, Professor Allman, Ed. Forbes; breakfasted and dined on board, and caught many curious critters. . . . Southampton is, of course, in a state of bustle and excitement; but without some exertion the "Times" will swamp these useful and valuable assemblies. It is something to have compelled its respect in regard to my own doings among the *savans*. Prince Albert came to our Zoological Section just after I had concluded a lecture on the skulls of animals.'

After the meeting, Sir Roderick Murchison writes on November 1 to Owen:—

'I cannot for the life of me comprehend why, after your excellent description, you will not venture on any sort of a name [for the fossil fox].

'You demonstrate it to be *no dog*, and yet you allow Von Meyer's name to stand, which is founded (mind) on a complete misapprehension of parts of the animal. . . .

'As the animal is a *British acquisition*—is

[2] A club connected with the British Association of which Owen was a member.

canonised in our "Transactions" [of the Geological Society]; and as his last and accurate dying speech is given by yourself; and as H. von Meyer *never saw the original* and has only heaped error upon error by arguing from Mantell's drawing, *pray* do not have his name of *Canis palustris.*

'Give any *nom de guerre* you please, but for God's sake and for love of me (qualifying it as much as you please) do let us show by the name that you have defined a *new fossil link.*' Yielding to this earnest request, Owen named it *Galecynus œningensis.*

On October 9, 1846, we find Owen writing to his sister Eliza from Drayton Manor, where he had gone to stay with Sir Robert Peel. He travelled down with Samuel Rogers and Charles Eastlake, and gives the following interesting particulars of his stay there:—

'The poet [Rogers], who is deaf, asked me if I could tell him who some of the people were [at the dinner party], who this, who that (he is getting old now). Sir Robert came to the rescue by "Mr. Rogers, will you take a glass of Johannisberger?" Very agreeable chat with my right-hand neighbour, which led old Sam to say, "But you can tell me who your friend is?" After dinner Sir R. asked many questions on Natural History and Physiology; characters of races of men; Sir James [Graham] joined, touching development of negro intellect in St. Domingo; then it led to

ancient statues, and Eastlake came in. . . . Found Rogers and Eastlake in the sculpture gallery on coming down to breakfast. R. talked about "Vestiges;"[3] Eastlake has not read the book. Then touching the "Chambers" of Edinburgh. . . . After breakfast went with Pickersgill into the portrait gallery, and profited by his criticisms. I am much satisfied with the light and the place in which my own is hung; it flanks one side of the entry, with Cuvier on the other.

'Sir R. pointed out some of his choice engravings. Eastlake showed me a curious perspective effect in one of Roberts's (R.A.) magnificent Egyptian subjects.'

To return to the journal:—

'*October* 21.—Boa died at the Surrey Gardens. It is over 15 feet long, and is awaiting dissection.'

'*November* 1.—Sent out for Nos. 1 and 2 of "Dombey and Son." R. is going to refrain till vol. ii. of his Lectures is out. Mr. Broderip begged to be allowed to take the two numbers home in his pocket. R. told him he might, on condition that he did not look at them to-night —upon which Mr. Broderip said that he should read every word before going to bed.'

'*4th.*—R. read at the Geological Society his paper on Sir Roderick's fossil fox.'

[3] *Vestiges of Natural History of Creation.*

'17*th*.—Richard to the Royal Society, where they had voted him the Royal Medal for his paper on Belemnites. He was in the chair at the last meeting when it was proposed, and demurred because it put him in an awkward position. After some discussion he was requested to retire from the room for a few moments, and Dr. Roget having again proposed the belemnites, R. found on his return that the medal was voted to him. The fact of his paper being recommended for the medal while he himself was in the chair might look strange to those who were not aware of the facts of the case.'

His co-medallist was Mr. Leverrier, to whom, for his discovery of the new planet, was awarded the Copley Medal.

On December 12 Owen sent to the printers a work in which is embodied the manuscript of his 'Vertebrate Animals.' This was an octavo volume, and consisted of his Hunterian Lectures on the subject. In this year also one of his more important papers was the description of a true fossil monkey (*Macacus pliocenus*) from the Pleistocene deposit of Grays, Essex, a note on which he had previously presented to the Institute of France.

The last evening of the year 1846 he spent at a large children's party, where he went in company with Lyell and Babbage, the latter of whom he describes as 'looking beaming throughout.'

In 1847 Owen devoted much time to the preparation of his work 'On the Archetype and Homologies of the Vertebrate Skeleton,' which came out in the following year. In the month of January Charles Darwin was a frequent visitor; sometimes appearing at an early hour. 'On January 7,' Mrs. Owen writes, 'Mr. Darwin was here very early, before breakfast. He and R. had a long discussion on the subject of R.'s views on osteology and the archetype. After breakfast R. brought out his "Broadsheet of Osteology." Mr. Darwin quite saw the force of that.'

This 'Broadsheet of Osteology' was a list or table which Owen had drawn up of all the scientific terms used by the most important English and foreign naturalists when describing the various bones of the vertebrate animals. The great difficulty in the way of Owen's scientific writings being generally read was the fact that, although they often abounded in picturesque descriptions, and certainly in rich and instructive revelations, yet the frequency with which long compound Latin and Greek words were used, quite unfitted them to compete with more popular expositions. And yet he, in reality, simplified and determined to a great extent the language of comparative anatomy. Often when preceding naturalists had used different names in describing the same bone, Owen avoided the confusion to which this gave

rise, sometimes by rejecting both names and suggesting a word more descriptive than either, sometimes by compounding the two in such a way as to suggest, by the very name, both the ideas which the two names contained. He gives the reasons which 'compel him in some instances to dissent from the high authority of Cuvier, Geoffroy, and Agassiz. The objection to some of the French nomenclature was that it often dealt in descriptive phrases rather than in single expressive terms—for example, the word 'hypobranchial' replaces what Cuvier calls the 'pièce interne de la partie inférieure de l'arceau branchiale.' The German language, on the other hand, though susceptible of happy combinations as regards description, yields such results as to make it impossible for many words to become the current language of anatomy; for example, Owen's comparatively harmless words 'supra-orbital' and 'supra-temporal' contrast favourably with the terrible expressions used by German naturalists —*Obcraugenhöhlenbein* and *Augenbogenschuppe*! for, as Owen himself remarks, such terms, excellent as they are in their way, 'are likely to be restricted to the anatomists of the country where the vocal powers have been trained from infancy to their utterance.

The Hunterian Lectures given by Owen this year were on the 'Anatomy of Fishes.' These lectures were afterwards published from notes

taken by William White Cooper, as were other courses of Owen's Hunterian Lectures.

'*February* 16.—Found the cook had a queer-looking bit of fish, which R. had brought in and told her to cook for dinner. There was only part of it in the kitchen, and I did not recognise it. The cook's chief objection seemed to be the name (*Anarrhichas lupus*) which her master had called it, and she was doubtful if a fish with such a name *could* be a fit thing to send up to table. It turned out to be what they call a "wolf-fish," and R. declared it was not at all bad.'

'*March* 10.—Meeting at Downing Street, at Lord John Russell's, consisting of Sir Roderick Murchison, Bishop of Norwich, Sir P. Egerton, and Richard, to discuss plans for a British Museum of Natural History.'

'16*th.*—Meeting at the College to-day. Proposed to erect a statue of John Hunter in Westminster Abbey. Dr. Buckland is quite willing to find space, if they settle that it should be erected there.'

'21*st.*—A proteus in a black bottle left here for R., who had gone to Mincing Lane to see a narwhal's head with two large tusks. No deception this time. The tusks both turn the same way.'

'22*nd.*—To luncheon at Dean Buckland's. A piece of roast ostrich, which we all tasted; it was very much like a bit of coarse turkey.'

'23*rd.*—R. had a very bad night. Query, roast ostrich? At four o'clock he called on Sir Robert Peel, who gave him a card for me to view the pictures at Whitehall Place.'

'26*th.*—The proteus still alive. Gave him an earthworm; would not touch it. Tried some spawn, but with the same result.'

'*May* 1.—R.'s twenty-fourth and last lecture. We hurried off as soon as we could to the Royal Academy, so as to get a look at the pictures before dinner.'

'2*nd.*—R. took one more look at the narwhal's head. I feel very savage with the College Council. They will not buy the head. If I were sure it would go to the British Museum I should not mind so much; it seems a shame to let it go out of the country.'

'6*th.*—Dr. H. Acland told R. that his proteus (not the same species as ours) only ate a worm about once a fortnight.'.

'7*th.*—Lady Hastings here with the Hordle crocodile, which she has pieced together admirably. She was busy in the museum for over two hours, glorying over her bones.'

'8*th.*—The worm I put into the vessel with the proteus the other morning has now been eaten.'

'23*rd.*—R. and I to the Gardens, according to a request from Sir Roderick Murchison, as the Grand Duke Constantine was to be there. The

Grand Duke speaks English well. He was greatly pleased with the bears. The elephant ill. The rhinoceros was in the water, looking self-satisfied, and like a clumsy model of a creature in mud.'

'*June* 7.—Mr. Mitchell called about the elephant. Dead. R. sent some College students to take out the elephant's brain, but they found it too difficult.'

'8*th.*—Pouring wet. R. went off to the Gardens before seven. Came back with his hand injured in getting the brain out. The skull was sawn, and the splinters got into his hand as he was drawing the brain out.'

'10*th.*—Grand Duke Constantine here. R. went round the museum with him. He stayed an hour and a half, and seemed greatly pleased.'

'11*th.*—The presence of a portion of the defunct elephant on the premises made me keep all the windows open, especially as the weather is very mild. I got R. to smoke cigars all over the house.'

'15*th.*—New Zealand paper sent by Mr. Farish, with cuts of a head which was found by natives in a river there and supposed to be a mysterious fierce something. R. says from what he can make of the woodcuts he has little doubt but that it was a calf's head.'

On June 19 Owen paid a visit to Lady Hastings at Lymington. Writing to his sister Kate (June 21, 1847), he says: 'The Marchioness is an

extraordinary vocalist—two octaves clear and more. Captain Henry, her husband, plays the violoncello; I take the flute, Lady H. the harp, and one of her daughters the piano. . . . Too tired to write when I go to bed, and seldom awake earlier than in time for an hour's work in the museum before breakfast. It is chiefly of fossils, several thousands, and some of them the finest in the world. I described one at the Geological Society last Wednesday night. . . . Lady H. and I have a joint memoir on another rarity for the Oxford Meeting [of the British Association].'

To this meeting Owen went a few days later.

'*June* 23.—Prince C. L. Bonaparte called, and went with us to Paddington. Our party consisted besides of Professor Nilsson, of Lund, Sweden, Professor Eckart, of Christiania, Dr. Allman (Ireland), and Professor Ansted. We arrived at Oxford at half-past one. We took the proteus in a pickle-bottle, as Dr. Acland had asked us to do so, to compare it with his. We had Lady Hastings' crocodiles' heads in a great basket carefully packed. Prince Charles Lucien took it on the seat with him in our fly, as there was no other place to put it, and sat in the seat with his back to the horses, with his arm embracing it. He has now grown a beard. Sir Robert Inglis had been very urgent about R. coming to see him as soon as he arrived at the Vice-Chancellor's. So R. having dropped the

Prince at his quarters on the way, left me at Christ Church, where Dr. Pusey had most kindly given up his house, and then went on to Sir Robert. Dr. Pusey was obliged to be away, but made over his house and servants to Dr. Acland, directing that whatever was wanted should be supplied at his expense. Lunch at Dr. Acland's, and then to the theatre, where Sir Roderick Murchison introduced his successor, Sir Robert Inglis. In the evening to Dr. Daubeny's, whose house is attached to the Botanical Gardens. Whewell, Wheatstone, the Bucklands, Bishop of Norwich there, and also Lady Hastings. She was standing talking to a knot of celebrities, when seeing us she came forward, saying that she must not stand any longer in the way. I whispered to her that she had a right to be a "fixed star" in an assembly like this, at which she laughed and answered, "Oh, you mean because of my head" (the crocodile's). There was a great crowd in every room, and also in the gallery where the books are, where people stood, with a strong light cast on them, looking at the others below. The Bishop of Norwich came up and remarked that their appearance up there reminded him strongly of a group of figures at Madame Tussaud's exhibition.'

'*25th.*—The Buckland breakfast. Frank's bear (Tiglath-Pileser), who resides on the premises, was an honoured guest, and was in cap and

gown. After the breakfast saw Mr. C. Darwin in the Zoological Section. We then made up a party to go up the river. We hired two boats. In ours, besides ourselves, were Mr. Darwin, Mr. Hill, and Professor Langberg, from Norway. In the other boat were Dr. and Mrs. Acland, Dr. Hooker, and Ehrenberg. We raced for some way, and landed at the bridge. On Sunday R. got up to early chapel. After breakfast went to St. Mary's, and by a curious coincidence the annual sermon was on the "Pride of Knowledge." The Bishop of Oxford, however, gave a very fine sermon. On Monday Prince Albert came, and spent some time with the Duke of Saxe-Weimar at the Zoological Section. In the evening R. and I dined at the Bishop's palace. The Bishop was most kind and hospitable, and we were all very merry at table. Frank Buckland afterwards favoured us with a solo on the French horn. The Bishop picked some beautiful roses for us to take back.'

Owen writes to his sister Maria from Dr. Pusey's, Christ Church, Oxford, on June 26: 'Cary and I have enjoyed ourselves extremely. We are master and mistress, after a fashion, of this house, the Doctor having fled, and liberally left it for the *savans*. Cary presided at one end of a breakfast-table this morning at which sat Ehrenberg, Nilsson, Milne-Edwards, Van der Hoeven, and other distinguished foreigners; Sir

R. H. Inglis, Sir Thomas Acland, Sir Ch. Lemon, Sir R. Murchison, Mr. Stanley (Bishop of N.'s[4] son), Faraday, Colonel Sabine, Colonel Sykes, Ed. Forbes, Dr. and Mrs. Acland, &c., &c., and did the honours very gracefully and sweetly. She is becoming quite a favourite at the Association, and especially of the Marchioness of Hastings, with whom we spent yesterday evening, after F.'s[5] lecture at the Ratcliffe.'

A few weeks after Owen's return to London Joanna Baillie, who was a relation of John Hunter's wife, gave him a relic of Hunter in the shape of a set of buttons which he used to wear. These buttons, which were of agate mounted in plain silver, were given to Hunter by a lady patient, as a token of gratitude for his skill in some operation. As they looked very handsome, John Hunter used to wear them at Court. Mrs. Hunter either gave them or left them to Joanna and Agnes Baillie on account of their relationship to her husband. (They are still in the family.)

In August, Owen made up his mind to send his son to Westminster, and called on the house master, a Mr. Rigaud. On September 24, 1847, he wrote to his sister:—

'Willie made his *début* at Westminster School this morning. The Justice and I conveyed him yesterday evening to his quarters at Mr. Rigaud's. As the cab drove up to the low Gothic archway

[4] Norwich's; future Dean of Westminster. [5] Faraday's.

leading from Great Dean's to Little Dean's Yard, some of the older boys who were lounging about cast significant glances at the box and other symptoms of the new-caught neophyte. We found the inmates at Mr. R.'s just about to sit down to tea, and W. was forthwith marched to the tea-room and introduced to his schoolfellows by Mr. R., and more especially to one Joyce, the eldest of them, in whose bedroom W. has his crib, and by whom, I understand, W. will be duly fagged. After some preliminary business as to pocket money, periodical visits, and entrance fees, Broderip and I returned to the tea-room to take leave, and found W. stirring his cup with his usual *sang-froid*, and partaking of fried fish in the company of about fifteen fine lads. We shall probably have W. home one Sunday before the Xmas holidays, by which time we shall know how Westminster agrees with him and he with Westminster. . . .

'The other day I met a pleasant party at the Justice's, consisting of Lockhart, Sir R. Vyvyan, and Major Shadwell Clerke. We meet again on Sunday at dinner at Sir R. Vyvyan's. I ought to have been dining yesterday at Drayton, Sir R. Peel having kindly invited me to stay there till Monday next, but the press of work just now compels me to forego all holiday visits till next summer.'

A considerable part of the following September

and October was devoted to work on the Sanitary Commission, of which Edwin Chadwick was an active member; but we see from the following letter, dated November 5, that Owen was able to relax his arduous labours on this public service:—

'I have just returned from the first meeting this season of the Literary Club, and as we were favoured by the company of Mr. Brooke, the Rajah of Sarawak, I am induced to put down a few notes of the sayings and doings of the evening, and I believe they will interest you. It is something to see in real flesh and blood what one had been accustomed to regard as a mere myth of the nursery—viz., a man who had sailed away to seek his fortune, conquered an island, and become a king. One had supposed that all such events and possibilities had long since passed away, and were altogether incompatible with this prosaic, matter-of-fact age; but the history and achievements of the present hero and lion of the town is a literal paraphrase of the old fairy-tale adventure. He is a well-built, average-sized, middle-aged man, with a strong, square, rather overhanging forehead, and a good spice of determination marked by a beetling brow, compensated by a frank, good-natured character of the mouth and lower part of the face. When I arrived at the Club—St. James's Palace clock was striking six as I passed—most of the members

were assembled, and the waiters preparing to set on the dishes, for Sir Robert is wonderfully punctual. He, however, spied me out, and before I could get my wrapper off took me to be introduced to the Rajah. His Excellency was in conversation with the Chevalier Bunsen. A most friendly greeting! There was a peculiar link between us in a very humble subject of Sarawak, a species of orang-utang which I had described as new, before Mr. Brooke arrived at Borneo, from a skull that I happened to have the opportunity of seeing, and which he found to be well known as a species distinct from the great orang by the natives. The party sat down as follows: Sir R. Inglis, Mr. Brooke, Chev. Bunsen, Baron Alderson, Croly, R. Owen, Chas. Eastlake, Vice-Chancellor (Shadwell), Sir Fred. Pollock, Baron Rolfe, Hallam, Sir R. Westmacott, Mr. Adolphus, Mr. Gregson. Eastlake began by asking me whether the habits or characteristics of animals were always indicated by their outward form, and quoted contradictory opinions he had had from Lyell and others. The Vice-Chancellor waxed warm at the indignity put upon the Eton boys by having been invited by the Queen to see Wombwell's menagerie. He vowed he would not have gone; it was treating them like a charity school. Sir Fred. fed the fire by intimating that *buns* had been served out to them, to which Rolfe added, "Elderberry wine." Croly argued it was

meant well, and should have been well taken. Had some chat with Eastlake about Westminster: he has two nephews at Mr. Rigaud's. . . . Hearing the word "Westminster," Croly broke in by asking me if Buckland was not in point of fact a great humbug. I defended the Dean to the best of my ability against the battery of wit and sarcasm brought to bear against him. As to the hyænas in Kirkdale, these and all the other groups of fossils were clearly explicable to Croly by the fact of there having been grand battues after the deluge. As men spread they rose *en masse* against the wild beasts, killed the hyænas off at one go in Yorkshire, for example, and buried them in the Kirkdale Cave. Then as to the sea, three-fourths of the earth was covered by it; it had its hills and valleys, there might still exist broods of *Ichthyosauri* and *Plesiosauri*, which might live for years or all their lives without coming to the surface or ever being seen. I replied that an ichthyosaur could not have lived an hour, probably, submerged, without being drowned, because it had lungs and breathed air. Croly contended against the possibility of our knowing that fact without having dissected a living animal. I showed how our knowledge of such was as certain as that of Leverrier's of the planet which, perhaps, he has never yet himself seen. It was a curious example of the impossibility, "after a certain age and habit of thought, of the

reception of a new train of ideas. Mr. Brooke, in walking home with me, expressed strongly his sentiments as to accepting truth in whatever form it pleased God to vouchsafe it to us. Some pleasant bantering passed on the subject of Mr. Brooke's excluding lawyers from his dominions. The characters of the natives of Borneo and their language were discussed. Some anecdotes of O'Connell were told. His proper family name was "Connell," and so of all his family for some generations; he did not assume the "O" till he got some property from an uncle, who made it by smuggling, and whose abode was a notorious receiving house for run goods on the coast of Derrynane. We had a discussion about Lamartine and his "History of the Girondins," and my end of the table was much interested by some of my revelations from the secrets of the prison-houses at Paris—Hallam in particular. He had no idea that such documents were preserved as those I examined at the Prefecture of Police.'

On December 3 Owen was nominated a member of the Commission of Sewers; 'not a very pleasant task,' he writes, 'as people strongly dislike being told of duties which they have been neglecting.' In a letter dated December 6, he refers to the reason of this new Commission—viz. the report issued by the Commissioners for the Health of the Metropolis, &c. 'I call it

ours,' he says, 'but it is chiefly Chadwick's and Southwood Smith's. My share was hunting up some of the cholera evidence, and general revision before it went to press. . . . The Government have acted promptly on the main recommendation—viz. the quashing of the old and the formation of a new general Commission, a step essential to the carrying out on an adequate scale experiments to determine the best and cheapest modes of street and house drainage. The results of these experiments will alter the mode of sewerage in all London first, then in provincial towns, next in Continental towns, where, in Paris even, they have as bad or worse modes of sewerage than with us. The amount of typhus and other deadly disease which will thereby be prevented is scarcely calculable, but will be enormous; a healthy, cleanly, and moral population will be substituted for the present unfortunate and oppositely characterised habitants of the courts, alleys, and small streets; and the blessings will extend far beyond the points immediately in view. The new consolidated Commission for London is for two years—time enough, I believe, to determine the merits of the new system. We work *gratis* to avoid the chances of obstruction from the cry that would be raised by the 800 cashiered Commissioners of "Government job." I lend the little aid I can give most willingly to help forward this great work, though some jealousies and misconceptions

attend such enlargement of my sphere of public utility.

As Owen anticipated, his duties as Commissioner were not always particularly pleasant. 'He was to have taken the chair this evening at "The Club,"' his wife writes in the journal (December 14), 'but was obliged to get off. He had been too much harassed all day for anything but to stay at home. Commission again!'

On the 19th we have the following entry: 'R. went to Westminster to see the Latin play. He said the play was all very well, but he could not help thinking of the accommodation provided for the boys. They had to stand four hours in a cramped, crowded, and exceedingly close place, without much possibility of moving. R. supped with Mr. Rigaud and the boys.'

In this year also may be mentioned the foundation of the Palæontographical Society, of which Owen was one of the heartiest supporters. This society, which had for its object the figuring and describing British fossils, owed its origin to the London Clay Club, formed by Bowerbank, Edwards, Searles Wood, Morris, Alfred White, and Wetherell in 1836, for the purpose of inquiring into the fauna and flora of the London Clay. In 1847, after the paper by Joseph Prestwich at the Geological Society, 'On the Structure of the London Clay,' Bowerbank urged the geologists present in the tea-room to support him in esta-

blishing a society for the publication of undescribed British fossils. Buckland, De la Beche, Fitton, Owen, and others gave him their names, and thus the Palæontographical Society came into existence.[6]

[6] *Geological Magazine*, 1877, p. 192.

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# CHAPTER X

1848-49

'The Archetype and Homologies of the Vertebrate Skeleton,' 1848—The Cuming Shell Collection—The Great Sea-serpent—Emerson and Guizot—Literary Work and Lectures—Death of Mr. and Mrs. Clift, 1849—Prince Charles Lucien Bonaparte—Member of the Commission on Smithfield Market.

In January 1848 a correspondent wrote to Owen asking permission to publish his 'Archetype of the Skeleton.' The following reply is interesting as containing Owen's views on the origin of species:—

'As I do not know the secondary cause by which it may have pleased the Creator to introduce organised species into this planet, I have never expressed orally or in print an opinion on the subject. Whenever in the course of special investigations I have met with phenomena bearing upon the hypothetical secondary cause to which you allude, I have pointed out such bearing incidentally; but the hypothesis itself, "transmutation of specific characters," which is always coupled with the idea of a specific direction—viz. *upwards*—has not been the subject of any express

writing or discourse of mine. It has struck me chiefly as an instance of the extreme barrenness of the human mind in the invention of hypotheses when not guided thereto by observation and experiment. Transmutation of species in the ascending course is one of six possible secondary causes of species apprehended by me, and the least probable of the six. When I remarked to the (reputed) author of "Vestiges," the last time he visited the museum, how servilely the old idea had been followed by De Maillet, Mirabeau (not the politician), Lamarck, and the author of "Vestiges"—viz. of "progressive development"—and that there were five more likely ways of introducing a new species, he asked suddenly and eagerly, "What are they?" I declined to give him the information, but shortly after brought prominently under his notice the facts that might have suggested one, at least, of the more likely ways. He saw nothing of their bearing, and I shall refrain from publishing my ideas on this matter till I get more evidence.'

About a fortnight afterwards Owen wrote a second letter to this correspondent, in which he says: 'With regard to the hypothesis of progressive development and transmutation of species, if you still desire me to state what my present opinion is, I beg to say that it continues the same as that expressed in the concluding summary of my second report on British Fossil Reptiles ("Reports of

British Association," 1841, pp. 196–202). And I have no objection to your adding, as my reply to your inquiry of my present sentiments on the subject, that if the Creator has been pleased to employ in the production of organised species any secondary influences or causes—of which no satisfactory proof has been adduced—present evidence, from anatomy and physiology, is against the hypothesis of the existence and operation in any living species of self-developing energies adequate to a change and exaltation of specific characters; but that the actual state of anatomical and physiological science is suggestive of other secondary causes, which seem to me to be more probable as operative in the production of species than "transmutation and development," as advocated by De Maillet and Lamarck; but that these other "secondary causes" are hypothetical, and require much additional observation and experimental testing before they can merit public attention.'

In 1848 his work 'On the Archetype and Homologies of the Vertebrate Skeleton' appeared. As early as 1846, at the British Association meeting held at Southampton, Owen put forward the views which he extended and explained in this book. These views were further illustrated in his work on the 'Anatomy of Fishes,' and more especially in his book 'On the Nature of Limbs.' Owen's ideas were based upon the observations of Lorenz Oken, and were designed to show

that all vertebrate structure might be reduced to one single type, figured in one of the bones of the human spine, from which ideal type he went on to show that all other vertebrate structure could be built up by an infinite variety of modifications. He argued further that the skull of the vertebrated animals was in fact only a modified arrangement of four backbones—each modified vertebra having an organ of sense, such as taste, smell, sight, and so on, at the front or anterior part of its bony ring.

Dr. St. George Mivart,[1] in discussing Owen's hypotheses, refers to the theory of the archetype, held by both Oken and Owen, as one which, he supposes, 'no one now maintains.' 'Nevertheless, these theories, when they were first promulgated here, produced no slight effect, for they drew many thoughtful minds towards questions of biology, and they roused an antagonism which has also led to much valuable work. We believe them to have been, in these different ways, very serviceable to science, but we also think that they embodied, or were the mistaken outcome of, some deep and very significant truths which are, in general, far too little appreciated, a wave of sentiment and the influence of a party (which could do much to make or mar a young man's progress) having combined

[1] *Natural Science*, 1893, p. 20.

to indispose many minds towards a dispassionate appreciation of them.'

At this time Owen's mind was much occupied with another consideration. The remarkable collection of shells formed by Hugh Cuming had been offered for sale to the British Museum. The importance of this series was so great in Owen's eyes that he wrote a strong appeal in January 1848, filling thirteen quarto pages, to Dean Buckland (a Trustee of the British Museum), urging upon him the necessity of the purchase. From this appeal we give a few extracts:—

'I may briefly state that this collection, as now offered to the British Museum, contains upwards of 19,000 species and varieties of shells, represented by about 60,000 specimens; and that not only is every specimen entire, but choice and perfect of its kind, as respects form, texture, colour, and other characters that give it value in the eyes of the shell-collector.

'As I can affirm from my personal knowledge, and from authentic sources of information, that no public collection in Europe possesses one-half the number of species of shells that are now in the Cumingian Collection . . . you may judge of the vast proportion of rarities and unique specimens possessed by Mr. Cuming. It is this which has given him for some years past the command, so to speak, of all the conchological cabinets in

Europe. He is better known and respected, and his labours more truly and generally appreciated in any city or town in Europe having a public Natural History Museum and Professor than in busy London. . . . Mr. Cuming in his annual visits to the Continent carries with him the inferior duplicates of his rarities, representing species with the sight of which the eyes of the foreign naturalist are gladdened for the first time. They open to him their treasures in return, and from most of the collections of Europe Mr. Cuming has borne away the prized species or specimens, in exchange for the still rarer and more valuable shells which his abundance has enabled him to offer, without detriment to his own rich stores.

'The mode in which Mr. Cuming has obtained this conchological wealth is as novel and exemplary as the result is important and marvellous, considered as the work of one individual. Not restricting his pursuit to the stores and shops of the curiosity-mongers of our seaports, or depending on casual opportunities of obtaining rarities by purchase, he has devoted more than thirty of the best years of his life to arduous and hazardous personal exertion—dredging, diving, wading, wandering, under the equator and through the tropics to the temperate zones, both north and south, in the Atlantic, in the Pacific, in the Indian Ocean and in the islands of its rich archipelago—in the labour of obtaining from their

native seas, shores, lakes, rivers and forests the marine, fluviatile, and terrestrial mollusks, 60,000 of whose shelly skeletons, external and internal, are accumulated in orderly series in the cabinets with which the floors of his house now groan. I never think of the casualties to which such a collection in such a place is subject without a shudder. . . . Perhaps one of the most striking points in the estimate of the scientific value of an extensive collection like Mr. Cuming's, arises out of its relation to the present active pursuit of *Geology* as an indispensable instrument to the determination of fossil shells. No one can give higher sanction than yourself to any expression of the importance of well-determined fossils, and especially shells, to a right knowledge of the relative age and position of the stratum in which they were embedded; and the geologists' confidence in results based upon fossil conchology must be in the ratio of the extent of the comparison with recent shells that has been gone through in the determination of the fossil shells, and especially before a species is pronounced to be extinct. . . .

'This, however, is but one of its scientific uses. From the period when the Atlantic, American, and Polynesian departments of the Cumingian Collection reached England, in 1831, scientific conchologists have there found subjects without intermission for their descriptions, and

the novelties were far from being exhausted when Mr. Cuming, having undertaken a third exploring voyage, returned in 1840 from Manilla, stored with the conchological riches of the Indian Ocean, which have subsequently kept the pens of competent describers of new genera and species actively at work, and will so supply them for years to come. Thus the Cumingian Collection has directly advanced the science of conchology in an unexampled degree, and possesses the same peculiar claims upon the Government, or custodians of the national collection here which Linnæus's Herbarium did upon the Swedish State. Mr. Cuming's collection contains, for example, the originals from which many hundred new species of shells have been described in the scientific periodicals or systematic works published since its arrival in this country.

'Any doubt that may arise through the incompleteness or obscurity of the description, or from the inaptitude of the student, may be decided at once by reference to the original specimens. These "types of the species" become, therefore, an instrument of great importance to the progress of the science in the country in which they are preserved and made accessible. . . . Delay in securing for the nation the Cumingian types of new species of shells may involve the necessity of crossing the Atlantic in order to compare and verify the descriptions and synonyms of

Broderip, Sowerby, Gray, Reeve, and other eminent conchologists. . . .

'The value of a shell, as of a jewel, depends much upon its rarity, and is to that extent artificial. The *concha unica*, which to-day commands the sum of twenty pounds, shall, next week, when a score of specimens have come into the market, fall in price to as many shillings. Still, the commonest exotic shell, if it be perfect and well coloured, and taken from a living mollusk, as is the case with the Cumingian Collection, from which "dead" shells have been strictly excluded, finds its market.

'I am given to understand, by competent authorities, that the sum of 6,000*l.* asked by Mr. Cuming in 1846 does not exceed two-thirds of the most moderate estimate of the present market value of his subsequently augmented collection.

'That ten times that sum would not bring together such a series as Mr. Cuming has offered to the British Museum I do firmly believe, from a knowledge of the peculiar tact in discovering and collecting, the hardy endurance of the attendant fatigue under deadly climes and influences, and the undaunted courage in encountering the adverse elements and braving the opposition of the savage inhabitants of seldom-visited isles, which have conduced and concurred to crown the labours of Mr. Cuming with a success of which his unrivalled collection is a

fitting monument, and of which science, and, let us hope, its cultivators in his native country more particularly, will long continue to reap the benefits.'

The British Museum purchased the collection in 1866.

Owen's power of concentration and absorption in a subject which interested him, was not confined to professional or scientific matters. We find that on January 22, 'after having heard a lecture of Whewell's, he went on to the Club,[2] and took up Thackeray's "Vanity Fair" to read. He became so deeply absorbed in the book that he sat on, oblivious of the fact that everyone else had disappeared one by one. He was also apparently deaf to coughs and hints of attendants, &c.; but still sat there reading and laughing to himself. At last in desperation the men came forward and began to take away the lamps. Then, having looked at his watch and found it considerably past 2 A.M., he rushed wildly out of the Club, and, like a scientific Cinderella, left his umbrella and great-coat behind.'

He watched for the monthly numbers of Dickens's works with great eagerness, and read them with much enjoyment as they came out. On February 29 No. 18 of 'Dombey' appeared, and he 'stayed up very late reading it.' He thus states his opinion as to the manner of Carker's

[2] The Athenæum.

Photo-engraved by Walker & Boutall from a Daguerreotype.

Richard Owen

death, which is related in that number: 'The character of Carker as drawn throughout the book makes it evident to me that he was not the man either to act or to be acted upon in such a way; not but that the scene is wrought up by a master-hand.'

On March 11 the last proofs of the 'Archetype' were sent to press.

During this month he carefully arranged the moa[3] bones which had been sent him by Colonel Wakefield. 'R. has made up one terrible-looking leg, which he intends to keep as a memento; the rest he has been sorting out on the floor in the library, with papers full of various bones, after their kind, lying all around.'

Owen had a disappointment this year with regard to the bones of the moa, for Sir George Grey, then Governor of New Zealand, had been busily collecting for him, but unfortunately his house and most of its contents were destroyed by fire.

'I lost,' Sir George wrote to him, 'all my plate, china, linen, wine, and the most valuable of my books, besides curiosities, native songs of different countries, and objects of natural history, which I had been many years in collecting. In your department I lost a magnificent collection of moa bones, including a complete skeleton of the largest moa which had ever been found. I had three complete

[3] Native name of Dinornis.

moa heads of different species, two complete (as I believe) spurs of the wings such as the kiwi has, and bones belonging to several genera of the moa of which I have seen no description. I had also a fossil bone believed to have been the bone of a quadruped, and many bones of the moa which had been gnawed by some large animal—some of them had been even crunched, as you could see the marks of the teeth of each jaw at the point of separation where the bone had been crunched off. I had also specimens of a new bird allied to the kiwi, but much larger and differently marked; said now to be extinct. It inhabits the Middle Island, and is what has been taken for the moa there. I had also many specimens of the kakapo, and I am almost afraid to say it, but bones which we all regarded as the rudimentary wings of the moa, to which the spurs corresponded—these have all now vanished in the flames, but I will in the course of this summer endeavour to collect again as much as I can. . . .'

This year London was considerably disturbed by the Chartist riots. 'The bigger Westminster boys are made special constables, but R. came in with the news that the mob had evaporated, and that the petition was carried to the House in a cab! He went on to Sir Robert Peel's to inquire after Lady Peel. The windows all closely shut and barred. At Gwydyr House he could not get in at first, but when in he found all the

windows shut and barricaded with the toughest matter they could think of—heaps of Blue-books. Meanwhile Mr. Pentland came in. He has been to the Deanery, where he says Dr. Buckland is very busy preparing for any demonstration on the part of the mob, enrolling special constables, &c. The Dean says (according to Mr. P.) that if they should attempt the Abbey by Poet's Corner he himself will stand and knock down everyone as he enters with a crowbar. Now that the bear is gone, the eagle is the chief pet there. There are likewise tortoises in the yard, and they lead a sad life from the eagle, who is in the habit of testing the hardness of their shells with his beak and claws.'

In April, Owen wrote a long letter to his sister Eliza, descriptive of the progress of his Hunterian Lectures at the College. He says:—

'I had imagined that the views were too general for the extent of subject embraced for an anatomical audience, and I was pleased to hear our President, who was complimenting me this morning, regret that he could not quite follow *all the minute details* which passed with me for the broad outlines of the sketch. It only shows how differently the lecturer and audience are situated, and how necessary it is to address oneself to the least informed.' He then refers to his sanitary work, and says: 'If I could bear to quit my dear *anatomy*, more profitable Commissionerships might

be had, but we are creatures of habit; the longing for the wonted scrutiny into unknown organisations would become uncontrollable, and happiness as well as usefulness, in a career for which I am peculiarly qualified, would be sacrificed at a very dear rate for a few more hundred pounds a year.'

After an account of a dinner at Sir Robert Peel's, where the possible action of the Chartists on the following day was discussed among other subjects, Owen refers to his 'Archetype of the Skeleton' in the following words: 'I have brought out my "Archetype" book; Van Voorst sells it for 10*s.*, and is to give me 6*s.* 6*d.* for each copy. He has taken 150 copies. Chapman took fifty, and accounts to me for 7*s.* 6*d.* for each, selling at 10*s.*'

His passion for anatomy was strong enough to withstand the slight inconveniences connected with the rooms which Owen inhabited at the College of Surgeons. The following entry in the diary of his wife shows that she also made light of them for her husband's sake :—

'Great trampling and rushing upstairs past our bedroom door. Asked R. if the men were dancing the polka on the stairs. He said "No; what you hear is the body being carried upstairs. They are dissecting for fellowship to-day!" R. engaged with the dissectors.'

In September we find that one of the aurochs

at the Zoological Gardens died, and provided Owen with a subject for dissection and description in a paper which he contributed to the Zoological Society.

In the following month Sir Robert Peel presented him with an enormous trout weighing 22½ lbs., caught in the Tame, near Tamworth. 'It is an extraordinarily handsome fish,' Owen writes (November 6), 'with most brilliant colours.' A portrait of this huge fish was painted shortly afterwards, and was presented by Sir Robert Peel to Professor Owen.

But another water-monster was then occupying public attention. Several persons of undoubted veracity declared that they had seen the 'Great Sea-serpent,' and brought much corroborative detail into their accounts, which were clearly given in good faith. The description given of a sea-monster which was reported to have been seen by the officers and crew of H.M.S. 'Dædalus' attracted more than the usual notice, for the position and intelligence of the observers guaranteed the truth of their story. Considerable correspondence ensued, and Owen made a strong attack upon the identification of the creature, and extended his arguments so as to include the improbability or mistaken nature of other statements which had preceded it. He founded his arguments on the fact that in all the stories and drawings of supposed great sea-serpents there was no undulation at all

of the body, or else it was a vertical one, which is not characteristic of serpents, and further, that no remains had ever been discovered washed up on any coast. He adds: 'Now, a serpent being an air-breathing animal, dives with an effort, and commonly floats when dead, and so would the sea-serpent, until decomposition or accident had opened the tough integument and let out the imprisoned gases. . . . During life the exigencies of the respiration of the great sea-serpent would always compel him frequently to the surface, and when dead and swollen it would

> Prone on the flood, extended long and large,
> Lie floating many a rood.

Such a spectacle, demonstrative of the species if it existed, has not hitherto met the gaze of any of the countless voyagers who have traversed the seas in so many directions.'

On November 9 Owen sent a letter to the 'Times' in explanation of an account of the great sea-serpent, saying that he was anxious through that paper to give his opinion once for all, as he continued to receive many applications for it.

Early in 1849 we find him acknowledging the receipt of a communication made to him from the Prince Consort through Sir Charles Phipps on the same subject. In this letter he states his opinion that the 'animal' seen from the deck of the 'Dædalus' was the head and track of a great seal,

or sea-lion. On February 22, 1849, he had an opportunity of personally explaining his views to the Prince, who attended one of his lectures, and went round the museum afterwards with him accompanied by Sir Robert Peel.

About this time there was another sea-serpent seen, of which the particulars were sent to Owen by the Duke of Northumberland. This Owen demonstrated to be the ribbon-fish from the drawing which was sent. 'Punch' soon had a parody on the subject—

Who killed the sea-serpent?
'I,' said Professor Owen.

'Scotched, not killed,' was Owen's comment on this. Another popular delusion which he set himself to dispel was the idea that a toad would live years, if not centuries, shut up without air or food in coal or rock. In defence of this it was urged that in breaking up lumps of rock, &c., which had never been disturbed before, toads occasionally emerged, not only alive, but in excellent health and condition. Mrs. Owen relates how she detected an ingenious fraud which was got up 'with intent to deceive' her husband.

'A piece of stratified coal sent from Yorkshire, together with a black-coloured toad, and the story is that this lump of coal was split open accidentally, and in an oval-shaped hole a toad was found alive and well. How long, then, was the toad living in that lump of coal?

'R. was extremely busy, and asked me to investigate and report on it. After looking at the two pieces of coal I began to wonder whether the two edges of the hole coincided exactly, which of course they ought to do, as the lump of coal was split right in the middle. After carefully taking an impression of the edges on some paper by inking them, and then placing them in juxtaposition, I ceased to wonder. It was quite plain the whole thing was a fraud. Yet there must have been much trouble spent on it, for the hole was carefully coloured with the same stuff as the toad was, and the *tout ensemble* was most plausible.'

Amongst the entries for June we find a description of Emerson, whom Owen met at a friend's house. 'Emerson is a tall, thin, gentle-looking man, with a reflective expression, good regular features, with dark hair, smooth and thin, and, I think, dark grey eyes. Much pleasant conversation at dinner. Mr. E. not at all positive in his manner, and very liberal in his general views. We all went to the Marylebone Institution afterwards, Emerson having just preceded us. The lecture was on the "Superlative." I like Mr. Emerson far better in conversation than as a lecturer. His manner in lecturing is studiously flat and cold. The matter good, but not striking. Long quotations from a Persian poet. The room quite full; saw Lady Franklin there.'

'*June* 30.—Mr. Emerson here for several

hours. R. went round the museum with him. A friend came with him, and both seemed much interested. Afterwards Mr. Emerson and his friend went with R. to Turner, R.A., to look at his pictures. Turner was out, but they got in and saw the pictures all the same.'

Owen has left a brief record of his meeting with Guizot at the Literary Club. Some years previously he had met him at the Zoological Gardens informally, but on this occasion, he says, 'I was brought forward and introduced as "the Cuvier of England" (I wish they would be content to let me be the Owen of England), when Guizot, politely bowing, said he was glad to find there *was* a Cuvier in England. Not bad that, but *rather* sly. He is a very interesting, fine old gentleman. I'll tell you exactly what he said when Sir Robert proposed his health. "Gentlemen, I feel very deeply de honour you have done me. It is eight years ago I sit in dis room, in de same company, receiving den de same honour. I was den de Ministère of a great king. I am now, gentlemen, I may say truf, a poor exile, but you receive me just wid de same honour, de same kindness, de same friendly hospitality. Gentlemen, I tank you from de bodom of my heart."

'There were present the Bishop of St. Davids, Lord Northampton, Vice-Chancellor, General Sir Howard Douglas, Colonel Leake, Mr. Adolphus, Mr. Kenyon, Mr. Eastlake, Mr.

Lockhart, Professor Twiss, Mr. Key, Sir Francis Palgrave, Mr. Hallam, Sir R. Inglis, and one or two more besides R. O. I sat next but two to Guizot, and had some interesting conversation with him about Cuvier and the Garden of Plants.'

Early in the summer Mrs. Owen writes: 'We saw to-day in Great Queen Street one of the evils of the Smithfield Cattle Market. A conveyance such as is used for large flat articles, like pictures, &c., passed, drawn by two horses, and tied down on it lay a black bull with enormous horns. Three or four men were sitting on the bull, and I noticed a red mark on its neck as though it had been goaded. R. discovered that the bull first ran from Smithfield, and after wounding several people and attacking the gate-keeper at Stone Buildings (who saved himself by shutting the gates), he rushed at a gentleman who was entering the Square from Stone Buildings, and after butting him, ran one of his horns into the poor fellow's left temple. They carried the gentleman off in a senseless state to King's College Hospital, where the house surgeon recognised him as an old friend and schoolfellow of his. The bull was chased back through Chancery Lane, Holborn, and nearly as far as Smithfield, when it rushed over a bar into a little court called "Fox and Knot," where it was at last caught by ropes let down from the houses. These occurrences are by no means rare. The animals get

perfectly frantic at Smithfield, and R. says it is high time the thing was properly looked into.'

How badly the Commission on Drainage, &c., was needed we can see from the following entry:—

*May* 8.—'Mr. Rigaud, house master at Westminster, here. The state of things round about Dean's Yard is something terrible. The school is broken up in consequence of the fever. The Dean is ill, the Canons, the masters, and boys —some boys are dying. Mr. Rigaud's little girl and their good old negro butler fell early victims to this attack.'

'22*nd*.—The Westminster fever business discussed at the Commission at Gwydyr House to-day.'

Many and strange were the remedies proposed:—

'R. busy reading an extraordinary paper, which had been sent him for his opinion, treating on a cure for cholera. It is a quackish concern, but Lord John Russell and Lord Lansdowne were taken in by it. R. is much disgusted with the thing, and has written his opinion pretty plainly.'

The drainage at Westminster was improved early in the autumn. 'On September 21, R. was again at Gwydyr House, and found that much has been done with regard to the drains at Dean's Yard. The huge ancient sewer is filled up now with rubbish, and everything has been carefully overhauled.'

The task of the Commissioners was a somewhat thankless one, even though their services were entirely unpaid in this instance. 'Article this morning (November 15) in paper, calling R. a "jack-of-all-trades," *à propos* of his multifarious duties—sewage, anatomy, health of towns, and geology.'

This Commission work, in fact, brought so many fresh things to light which it was absolutely necessary should be inquired into that Owen thought he could not possibly give his attention to all that it entailed, and therefore announced his intention of resigning. He received the following letter on the subject from Mr. (afterwards Sir Edwin) Chadwick, a fellow-Commissioner, who became a lifelong friend and was in after years the near neighbour of Professor Owen:—

'Dear Owen,—I wrote to Lord Morpeth that you wished to retire from the Metropolitan Sewers Commission. In a letter of to-day he says:

'"I do very much lament the intention of Professor Owen to retire. We cannot, indeed, spare his enlightened philanthropy.

'"Could you not in our joint name beg him at least to belong to us at first?"

'Unless you give me insuperable reasons I shall still clap down your name.

'Yours ever,

'E. CHADWICK.'

Owen did not carry out his intention of resigning his Commissionership—on the contrary, he stayed on the Sewers Commission until its work was completed, and also served on the subsequent Commission on Smithfield Market, &c.

The year 1849 was marked by the appearance of Owen's memoirs 'On the Nature of Limbs,' and on 'Parthenogenesis'—a term which he himself devised in order to designate scientifically the phenomenon which that name implies. He commenced a remarkable series of papers on the fossil birds of New Zealand at this time in the 'Transactions of the Zoological Society,' 'On Dinornis' (Parts I. and II.) as also various papers on some fossil mammals of Australia. Mention must be also made of the series of monographs which he prepared for the Palæontological Society on British fossil vertebrates, including a memoir on the fossil reptiles of the London Clay (1849–50). This monograph contains the following remarks concerning the former existence of crocodiles and alligators in England, which may be found of interest:—

'Had any human being,' he says, 'existed [in Tertiary times] and traversed the land where now the south of Britain rises from the ocean, he might have witnessed the crocodile cleaving the waters of its native river with the velocity of an arrow, and ever and anon rearing its long and slender snout above the waves, and making the banks re-echo with

the loud, sharp snappings of its formidably-armed jaws. He might have watched the deadly struggle between the crocodile and the palæothere, and have been himself warned by the hoarse and deep bellowings of the alligator from the dangerous vicinity of its retreat. Our fossil evidences supply us with ample materials for this most strange picture of the animal life of ancient Britain; and what adds to the singularity and interest of the restored *tableau vivant* is the fact that it could not now be presented in any part of the world. The same forms of crocodilian reptile, it is true, still exist; but the habitats of the crocodile and the alligator are wide asunder, thousands of miles of land and ocean intervening: one is peculiar to the tropical rivers of continental Asia; the other is restricted to the warmer latitudes of North and South America; both forms are excluded from Africa, in the rivers of which continent true crocodiles alone are found. Not one representative of the crocodilian order naturally exists in any part of Europe; yet every form of the order once flourished in close proximity to each other in a territory which now forms part of England.'

Amongst the other papers which he found time to write may be mentioned the 'Anatomy of the Apteryx' ('Zoological Transactions'), 'On the Hippopotamus' (at the Zoological Gardens), in the 'Annals and Magazine of Natural History,' and also the first of a long series of papers on

'Osteological Contributions to the Natural History of the Chimpanzees' ('Zoological Transactions').

Some of the incidents which occurred in 1849 are thus noticed in the diary:—

'*January* 10.—The author of "Orion," Mr. Horne, came to dinner, and brought a copy of his poem, now in its sixth edition. The object of his coming was to get information from R. regarding the structure and powers of the eye. He is evidently thinking of making Orion regain his sight.'

'*February* 4.—R. sent a ticket for his lecture, the College Oration, to T. Carlyle. On the 6th Carlyle wrote a characteristic letter in return for the ticket. He is evidently pleased at having been remembered.'

'*8th.*—After dinner went up to the study, where R. had all his diagrams laid out on the floor ready for to-morrow's lecture, and I had the whole lecture to myself, seated in a comfortable chair. R. was anxious to ascertain what I, as an averagely informed member of a "general" audience, found clear, and also what I thought wanted a commentary or explanation. He agreed to modify and alter a few points, and there were also some slight retouchings wanted in the diagrams.'

'*14th.*—Prince Albert came to hear the oration at the College to-day at three o'clock. The Body Corporate had made preparations to receive the royal guest, but they went to the beadle's little

office across the hall, ready to issue forth when Ford should give notice of the royal carriage. At a few minutes to three, R., who was in the dining-room laughing and talking with my father and mother, left the room with the gentlemen as they went to take their places in the theatre, and just as he was going in at the hall door a carriage drove rapidly up, and he was the only person in the way to receive Prince Albert, and so had to introduce the President to him as he and the others came bundling out of the office into the hall. The Prince joked a great deal about R. being the sea-serpent killer. After the oration the College gave a dinner—their first experiment of dining *chez eux*. All was brought from the Freemasons', and the dessert, &c., was laid out (preparatively) in R.'s study. The Prince did not stay to dinner, but amongst the guests were Hallam, Sir R. Peel, Bishop of Oxford, Captain Sir Everard Home. When the Bishop had finished grace in his mild, quiet way, the toast-master, leaning forward as when giving out the toasts, said with a loud voice "A-men." On this unexpected response the Bishop's mouth twitched, and he gave one comical look across to where R. sat. The speeches were of various qualities and quantities, but certainly the Captain's (Sir Everard Home's) was one of the best for its brevity, its simple good sense, and its heartiness. He looks, as he has for the last thirty years, a big, fair,

serious and rather pretty Brobdignag cherub, but is no cherub in sense; whatever he says is to the point, and good feeling and thorough truthfulness are always at the bottom of it.'

'15*th*.—R. dining with the "Red Lions." He was to-day at the British Museum Committee of the House of Commons giving evidence. R.'s statements and evidence caused much sensation.'

'*March* 13.—Lecture I. for 1849.[4] Last night R. read to me his first introductory lecture for criticisms, &c. The whole course this season is intensely interesting. This introductory lecture is split up into two parts. They are to be published at once.'

'17*th*.—Mr. Mitchell called to say that the Zoological Gardens had made another acquisition —bower birds, two males and a female, brought over alive. R. was talking it over this evening, and he remarked, *à propos* of the bower bird building with bright-looking shells, stones, &c., that it might be a remnant of such a propensity as causes a magpie to carry off and hide glittering objects.'

'21*st*.—To-night a letter from the Admiralty to R., enclosing one from Admiral Sir C. Napier describing a sea-serpent. The first lieutenant's drawing (a good one) was sent too. R. soon had an idea which seems a satisfactory one.'

'22*nd*.—To-day I drew the explanation of the

[4] Hunterian Lectures, 'On Invertebrata.'

sea-serpent, one for the Admiralty and one for home.[5] I also got Ainsworth's "Lancashire Witches" for R. I always get these sort of books for him during lecture season, as the best sort of relaxation after hard work.'

On March 29 Owen writes to his sister that at a dinner at Lord Carlisle's he sat next to Charles Dickens and had much pleasant conversation with him, and in the same letter he says: 'Yesterday we had J. M. W. Turner to dinner here, and I took him with Willie to Lincoln's Inn Chapel, and then to the Zoological Gardens.'

The diary then contains the following entries:—

'*April* 14.—Mr. Duncan here. He is our Chargé d'Affaires at Dahomey. It seems a present of peacocks is to be given to the King there, in order to induce him to make us a present of a hippopotamus.'

'21*st*.—Two amusing envelopes to-day. One from France, addressed to "Sir Owen, Directeur de l'Académie des Sciences à Londres,' the other from Perm (wherever that may be), addressed to 'Son Eccellence Richard de Ouen.' This last was concerning the aurochs, and the title has a crusading flavour about it.'

'28*th*.—With R. to the Royal Institution. We

[5] The Admiralty sent all the reports of 'Great Sea-serpents' which they received to Professor Owen for his opinion. On this occasion he demonstrated it to be two whales, which under certain conditions might give the appearance of a great sea-serpent.

got there just before three, and there was a crowded audience, as usual, to hear Faraday's lecture. The poor man entered and attempted to speak, but he was suffering from inflammation or excessive irritation of the larynx, and after some painful efforts to speak, a general cry arose of "Postpone," and someone, apparently in authority, made a short speech from the gallery. Mr. Faraday still wished to try and force his voice, saying that he was well aware of the difficulty of getting back the carriages, &c., before the time for the lecture had elapsed, to say nothing of the disappointment to some; but every moment the cry increased, "No, no; you are too valuable to be allowed to injure yourself. Postpone, postpone." Poor Faraday was quite overcome.'

In May 1849 Owen attended the Royal Academy dinner, of which, in writing to his sister Eliza, he gives the following account, showing how thoroughly he enjoyed any recreation, of whatever nature it might be: 'I got to Trafalgar Square,' he writes, 'then penetrated the line of police, received my catalogue, and was soon in the midst of the artists, their guests, and their beautiful works. Pushed on from one friendly greeter to another till I got into the last great room, where the dinner is laid out, and Baily the sculptor having pointed out my place, I began to make the tour of the "Tableaux." Whilst scrutinising Herbert's masterpiece from

"King Lear" was patted on the back by Lord Carlisle, and after a little critical chat on one of Turner's peculiarities, moved on. Looking next at a group of fawns by Edwin Landseer, someone pushed past my elbow, and who should it be but the old Duke of Wellington: a stiff bow, and on he marched, all military upright to the shoulders, and then the reverend old head pokes forward at an obtuse angle; the large silver buckle of the stiff white stock shining at the nape, above the collar of the blue coat with its bright gold buttons and shining star. The crimson sash across the white waistcoat, black pantaloons and shining boots. Looking better, I think, than last year, and quite enjoying the pictures. After his Grace had passed I followed quietly in his wake; but was soon arrested by the Duke of Northumberland, who had invited me a month or two ago to the North, and repeated his hospitable wishes. Some badinage about the sea-serpent (I shall never hear the last of that), and then came tripping along my Lord Brougham: a civil salute, but he evidently forgot to whom. In three minutes, however, he came back again, and plunged at once into the mysteries of "Parthenogenesis," about which the world is beginning to talk, as the subject of my "Lectures" oozes out in conversation. Lord Monteagle and then Lord Stanley, and then the Chief Baron Pollock, and then little Lord John [Russell], as sharp as a sparrow-hawk, and the

quieter old Lord Lansdowne, and our new Archbishop, and soon after the Bishop of Oxford, who was full of the lecture, &c., and so with the company and the artists and the pictures. Sat down very happily between old Turner and a Mr. Young, with J. H. Green and Edwin Landseer opposite, and old Pick. [Pickersgill] not far off, and a very chatty, pleasant dinner, good speeches, and capital singing by a small band of choice professionals, after dinner. The Duke as characteristically sententious and stentorious as ever. Charley Stokes, who was there, left early, and as he passed slipped a ticket into my hand, saying, "Now if you want to end with a thorough holiday you may wind up with this." I glanced at the words *Pit*, *Opera*, &c., and did not tarry long after. Old Guizot and Lord Mahon left at the same time. Walked into Fop's Alley, where I found two acquaintances who made a good place for me, and saw the house was regularly crammed. Her Majesty and the Duchess of Kent occupying opposite corners, or ends, of the Royal box; a chorus chanting on the stage. "What's going on?" I asked. "Jenny Lind! The last night of 'Sonnambula!' Don't you know?" Soon did. The last two scenes—and such scenes! The Unsurpassed surpassing herself. Her Majesty would have the beautiful flower scene repeated, where Jenny in her sleep brings the withered posy which she has kept, a love relic, and fondles it.

What outpouring of notes full of all the affection and feeling conceivable! Came away as soon as the last shower of bouquets had fallen to tell all the story to my dear little wife, who got the conceit in her head that I must be about one of the happiest men in the world; and truly I must own that yesterday was a day which is worth living for. One enjoys a holiday or a pleasure-making so thoroughly when it has been earned.'

On June 17, 1849, Owen writes to his sister Eliza, from Worthing, about an excursion he made to some chalk-pits near Arundel (Southeram), together with J. E. Gray, F. Dixon, and Lord Northampton, 'who is an ardent collector of flint fossils.' He says: 'One of the pitmen remarked, when his lordship had been hammering over one heap through a long afternoon, "That man doan't work for his living; if he went on that gate he could do nought next day. . . ." The "Houghton" pit is the oldest and largest of the escarpments; it forms a magnificent amphitheatre of soil, enclosing a verdant, undulating area, along which the river Arun meanders. A wonderful quantity of the rarest British plants flourish in this retired, out-of-the-world spot, from which a fine extent of the chalk country is seen, chequered by shady groves and sunny plains, with much of the demesne of Arundel Castle included in the scene. Here our rustic table was set out with four seats, and here, after some hours' good work, we sat down

to cold boiled beef, cold fowl and tongue, salad, lobsters, sherry and ginger beer, . . . all more or less like millers ; my lord the whitest, particularly one side of his nose, being short-sighted. Dixon occupied himself in penning a pretty little sonnet to mark the occasion, of which I quote the last few lines :—

> But should some scientific mind behold
> This ancient tomb of lizards, birds and fish,
> Of shells, and smaller forms of every mould,
> Their flinty shroud removed, will meet his wish.
> These lines to mark a happy day are writ
> With Owen, Gray, and keen Northampton's wit.'

From Worthing he went on to Lady Hastings', at Lymington, and in a letter to his sister Kate (June 19, 1849), he says of Lady Hastings' collection : 'Rare and wonderful beasts, carnivorous and herbivorous, are represented by the numerous jaws and bones of all parts of the skeleton which Lady H., by encouragement to the poor women and children, has received from the old Eocene beds about here.'

About a week after Owen's return to the College of Surgeons a great grief befell him and his wife—the death of both Mr. and Mrs. Clift. Mrs. Clift, who had been ailing some time, first passed away, and her death was quickly followed by that of her husband. Owen had always the strongest feelings of respect and affection for William Clift, with whom so many events and

reminiscences of his early life were intimately associated, and we learn the sentiments with which Owen regarded his father-in-law from the interesting 'Obituary Memoir of William Clift' which he shortly afterwards communicated to the Royal Society.

In July, Owen received a letter on the subject of the window tax from Travers Twiss, exhorting him, in the following terms, to use his influence towards its abolishment. 'It has always struck me as rather a cruel provision to tax such ventilators, even when it was not regarded as prejudicial to health. But in the present day, when the State does not hesitate to impose severe duties on individuals as to drainage, ventilation, &c., it seems inconsistent in its not recognising the duty of the State to throw no impediment by its own fiscal regulations in the way of one of the most important branches of domestic ventilation. Can you bring the subject before the proper authorities, or let me know how it should be done? It would be a politic as well as a proper measure, and the gain is so paltry.'

On the 21st of this month we have an account of another visit of Prince C. L. Bonaparte to Owen:—

'R. had gone off to the Gardens, and I was sitting alone at home when I heard a familiar voice asking questions of the servant at the gate. Presently the door opened and the servant an-

nounced *Mr.* Bonaparte! I told him I was not much surprised to see him, as I knew that he had left Rome. He has shaved off his beard again. He said that he would like to go after R. to the Gardens, but that he would also like to take Willie with him as a protection. In the evening he came back with the others and stayed to dinner. He talked a good deal about science and also politics. The toast was "Viva l'Italia libra!" at which he was much pleased. After dinner he took up the "Observer," not expecting to find correct news in the paper; but he said the accounts from Italy were almost the same as those which he had himself received. He left rather early, as he had only arrived in England at ten o'clock this morning.'

A few days later Prince Charles Lucien came again, saying that he was anxious to go to Madame Tussaud's to see the wax figures of his relatives there. 'It so happened,' Mrs. Owen writes, 'that a Westminster friend of Willie's was here to lunch, and the Prince having come here early, said that he would come with us and the two boys. When at the exhibition we had the rare opportunity of comparing the models of *the* Napoleon and of Lucien with the son and nephew. The Prince looks very Napoleonic at times, especially when he frowns, as he did when puzzling over the catalogue. He hunted out the likeness of his cousin (Louis), but on seeing how very bad it

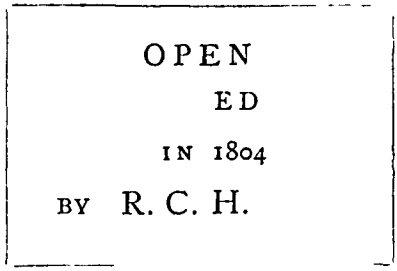
was, scarcely bestowed a second glance at it. R. mentioned that he had seen Louis Napoleon for more than an hour in the museum a few years ago, and that the model hardly recalled his likeness. But the Prince was much struck with the likeness of his father, and also that of Madame Mère, his grandmother. We saw, amongst other relics of Bonaparte, one of the set of gold knives, of which my father had two, and which we have now. I showed them to the Prince at dessert, and he recognised them by their make as soon as he saw them. When in the rooms where the Napoleon family models were, I noticed people looking at the Prince with great curiosity and interest. He was exceedingly kind to the two boys, and laughed and joked with them, especially about the Chamber of Horrors, pretending to be dreadfully afraid of it. I noticed a trait of character this evening which amused us very much. Mr. Samuel Warren (author of "Ten Thousand a Year") was here, and after dinner the Prince was playing on the piano some rather lively marches and tarantellas, when Mr. W., evidently rather flushed with the excitement of meeting the distinguished guest, said as he lolled back luxuriously in an arm-chair, "Why don't you play us something more melancholy, Prince? I want something melancholy." Prince Charles Lucien, seeming to take no notice of the request (Mr. W. until this evening was a total stranger to him), went on

playing with a bland smile on his face, but the most dreadful compound of discords and noise. R. had gone upstairs for a few minutes, but hearing this strange thumping came down again to see what it was. I explained the situation to him in a whisper, and he soon grasped it. Mr. W. finally retired in discomfiture, and left the Prince still beaming with the most perfect good-humour.'

In August, Owen received an amusing letter from Sir Philip Egerton, descriptive of the meeting of the British Association at Salisbury, which he was unable to attend. It was chiefly composed of archæologists, whose efforts were crowned with a success resembling in a striking way the famous discovery made by Mr. Pickwick of the stone bearing the inscription, 'Bill Stumps his mark.' Sir Philip, after saying how much he had been bored by the whole business, continued :—

'. . . I felt more at home standing on Inigo Jones's palladian bridge and watching a fat old newt's habit of life in the stream below, than in listening to the Dean of Hereford's account of his diggings in the barrows. I had a sample of this sport quite worthy of "Punch;" for on our way to Stonehenge we had a grand digging (only to be equalled by the Californian gold-diggers, to judge by the anxious faces and lively scrambles of the expectant archæologists), and at length found—

what do you suppose?—a mysterious bit of sheet-lead, of which I send you a rough sketch.




'Buckland was very great at Stonehenge, and narrowly escaped having to fight a duel with the son of a Mr. Somebody, who, the Dean said, had written a book to prove that the architect of the mysterious ruin was Cain, and had dedicated the book to him to buy his acquiescence in the theory. . . . I both amused and edified myself during the locomotive parts of my trip with studying "Parthenogenesis" and the "Nature of Limbs." I recommended the perusal of them to old Sedgwick.'

In September, Owen suffered another loss in the death of his old friend Frederick Dixon, of Worthing, at whose house he had spent so many happy days. Owen was with him at the time. The value which he set on Dixon's friendship is evident from a letter to his wife, in which he says: 'There was a genuine goodness in poor Dixon that makes me feel bereaved of a true friend, and in many difficulties, though small perhaps, always the best adviser about College and other such matters,

in which I could fully confide in his true heart and judgment. Peace be with him! Few men have better earned it.'

In November the rhinoceros at the Zoological Gardens died, and, 'as a natural consequence,' Mrs. Owen writes, 'there is a quantity of rhinoceros (defunct) on the premises.' Owen mentions this rhinoceros in a letter to one of his sisters :—

'Amongst other matters time-devouring, and putting out of memory mundane relations, sisters included, has been the decease of my ponderous and respectable old friend and client the rhinoceros. I call him "client" because fifteen years ago I patronised him, and took it upon my skill, in discerning through a pretty thick hide the internal constitution, to aver that the beast would live to be a credit to the Zoological Gardens, and that he was worth the 1,000 guineas demanded for him. The Council had faith, and bought him, and he has eaten their hay, oats, rice, carrots, and bread in Brobdignagian daily quantities ever since, and might have gone on digesting had he not, by some clumsy fall or otherwise inexplicable process, cracked a rib; said fracture injuring the adjacent lung and causing his demise. His anatomy will furnish forth an immortal "Monograph," and so comfort comes to me in a shape in which it cannot be had by any of my brother Fellows of the Zoological order. . . . Yesterday I went to the Athenæum, and finished the second volume of

"Shirley." I suppose your good and kind host, to whom give my best remembrances, has read that Yorkshire novel of Currer Bell's lang syne. I like it. I am also reading again Lockhart's "Life of Scott," which I have bought. Let me recommend to you both Hugh Miller's "Footprints of the Creator," 12mo—a book to be bought, not borrowed.'

A constant guest at Sir Robert Peel's dinners, Owen often refers to them in his letters, and in one of these to his sister Eliza (November 28, 1849), he mentions among others, 'Sir William Hooker (with very interesting news of his son, who has climbed to the plateau of Thibet, where he has a chance of catching the "unicorn"—besides a fever), and two or three curates in white neckcloths (they are always represented at Sir Robert's hospitable table), very like those described in "Shirley." . . . To-day Mr. Horne, the poet, author of "Orion," dines with us, to receive a criticism on a pretty little Xmas book of which he has submitted the proof sheets to me. It is to be called the "Poor Artist," and I can recommend it for a pleasant evening's light reading.'

On November 27 Owen was appointed member of the Royal Commission on Smithfield Market and the Meat Supply of London. 'The first I heard of it was from the notice in the "Times,"' Mrs. Owen writes, 'for R. has not mentioned to anyone that he was to be on the new Commission.' 'This Commissiön,' according to

the 'Times' of Tuesday, November 27, 1849, 'has been appointed to inquire into the live and dead meat markets of London, and consists of seven members.' Owen attended the first meeting at the Home Office, on December 5, and shortly afterwards an entry in the diary records of the second meeting that it was of a most satisfactory character, owing to some conclusive and sensible evidence given by a noted West-end butcher: 'This gentleman came prepared with a plan of improvements in slaughter-houses, &c., which was much the same as the committee were struggling to bring about. Richard asked him (his name, I think, was rather appropriate—Giblet) if he was aware that his really excellent plan, which Mr. Giblet was afraid might prove too Utopian to be acted upon, existed and was maintained in most Continental towns. R. made a great point of this, so that the Lord Mayor, who was present, could not plead ignorance of such a fact. There will be a great deal of difficulty in altering the present state of things in London—chiefly in respect to the great sums of money required—but it must come sooner or later.'

'*December* 4.—Milne-Edwards and Dumas *fils* here this evening. Young Dumas has a very worn, old look, though he cannot be more than twenty-five. He says he understands English, but does not speak it.'

'9*th*.—We hear that there is a hippopotamus waiting for the Gardens at Cairo. It must be an

enormous expense, but it is worth it. Our consul at Cairo is taking care of it, and it is being nursed there, consuming I am afraid to say how many pints of milk per day. It is intelligent and a great favourite, and has red spots on its skin after bathing [" due to extravasated blood," Professor Owen notes].'

'31*st*.—Boys' party here, for the last day of the old year. They had a toy theatre, and performed "Der Freischütz," to the accompaniment of blue and red fire, &c. In spite of long waits, and some arguments (*ad hominem*) behind the scenes, R. sat it all out with the greatest patience.'

On this day Owen wrote a letter to his sister Eliza, giving a short summary of his work during the past year: 'I have safely received the promised present of wax models [of the anatomy of the torpedo] from the Grand Duke of Tuscany, sent in a right Royal fashion. They are very beautiful, and of at least 300*l*. value; I have presented them to the College. 1849 has been productive of "Parthenogenesis," the "Nature of Limbs," and the beginning of my big book on "British Fossil Reptiles," a new course of lectures, and the completion of the "Catalogue of Osteology;" besides some minor matters on chimpanzee, chelonian, carapace, &c. Smithfield runs away with some time; but that will conclude, I think, my sanitary labours. The good work is in train, and cannot now be stopped.'

# CHAPTER XI

1850-51

The Megatherium—Preparations for the Great Exhibition of 1851—The Smithfield Commission—Additions to the Zoological Gardens—Juror of awards at the Exhibition—Visit to Paris at the Invitation of the President of the French Republic—Article on Lyell's Works in the *Quarterly Review*, October 1851—The Copley Gold Medal—'Chevalier de l'Ordre Royal pour le Mérite'—Sheen Lodge, 1851.

In 1850 Woodbine Parish sent home from Buenos Ayres the remains of a gigantic extinct mammal, more nearly allied to the ant-eaters and sloths than to the armadillos. The Megatherium, as it has been named, had already been described by Cuvier and Mr. Clift; but this new specimen afforded Owen the opportunity of writing his famous paper on the subject which appeared in the 'Philosophical Transactions.'

Early in the year Dr. Gideon Mantell wrote to him cautioning him against overtaxing his mental powers. In this letter Dr. Mantell says: 'I once possessed as much mental energy as most men, but by overwork I now feel fit for nothing.

Be warned by my example. I hope in April to send you two little volumes, the compiling of which has served to beguile many a weary hour; for after the professional exertions which I am obliged to make for my daily bread I suffer greatly, and should have been dead from *ennui* ere this, had I not such resources. Miss Martineau has published "Life in the Sick Room: mine will be "Life on the Sick Couch;" and I think the notes of the naturalist will be more cheering than those of the political economist. . . .

Owen did not disregard Mantell's advice, and in a letter to his sister dated February 4, after remarking that he has been taking things rather easier, he says: 'As dining out keeps me from working in the evening and saves my eyes, I have been indulging in accepting lately many invitations; but henceforth intend to decline until my lectures are over. . . . Saturday morning I went to breakfast at Hallam's, and had a great intellectual treat—Macaulay the historian, Milman the poet, Gutzlaff the Chinese traveller, Major Rawlinson the Babylonian traveller, who has got the clue to the cuneiform inscriptions on the Nineveh sculptures, Lord Monteagle, &c. Thence I went to see the poor Dean of Westminster, whose health, I fear, is breaking.

'Willie is going on very satisfactorily at Westminster, but he is in a class of very sharp and hard-working, or, as he calls it, *muzzing* boys, so

I don't at all set my mind on his winning his election next year.'

Describing a concert at Exeter Hall, he writes: 'We had front seats, and therefore I had a good opportunity of observing Ernst and Thalberg, who were both playing. Ernst is more like a vampire than a man, awful to look at; Thalberg as great a contrast to him as one can conceive, his whole being redolent of meat, pudding, and creature comforts. Both perfectly calm and imperturbable, but the one is the placidity of a dumpling, the other that of a corpse. Miss Dolby sang, but there was a new star too—Mr. Sims Reeves. He has a truly fine voice, and knows how to manage it. He sang "My Pretty Jane," but I personally prefer to hear it as it was written, and in its original simplicity. Also he sang the words "Meet me in the gloaming"—"Meet me in the evening," a small thing, but he might as well have used the right word.'

One of the memorable events of the year 1850 was the inception of the scheme for the Great Exhibition of 1851, in which Prince Albert took, as is well known, a most active part. The first meeting of the Committee—which included Lord Granville, Lord Stanley, Owen, Lyell, De la Beche, and others among its members—was held at Buckingham Palace on February 13.

Mrs. Owen writes in her diary:—

'*February* 14.—At past 2 o'clock a message

came to R. from Prince Albert, asking him to prepare a list or classification of animal structures for the Exhibition, to be ready for the Committee at 3 o'clock. So, as R. had come in after the message, he had to work against time and set off to the Palace without any lunch. R. gave us an amusing account of the proceedings of the Committee at Buckingham Palace. There was of course much good work done, and many clever suggestions made. . . . The Prince had plenty to do in the business which fell to his share as chairman. They assembled at 3 o'clock, and not till a quarter to 8 did they break up, when a message was somehow conveyed to H.R.H that it was time for him to dress for dinner. On the whole, R. was much pleased with the day's work.'

Owen was placed on the committee of the comprehensive section 'Raw Materials and Produce of the Animal Kingdom.' The list of substances in itself occupies many pages, and they were also divided into their uses—food, medicine, chemistry, clothing, building, and manufacture.

As to the food, Owen remarks that it is impossible to give an exact list, for 'almost every part of almost every species of animal serves as food to some variety or other of the human race.' The list of food was indeed a varied one, ranging from condensed milk to edible birds' nests; and the manufacturing and domestic uses of the

products of the animal kingdom seem to have included anything from tallow candles and gelatine to tortoise-shell and pearls.

In March, Owen attended his first Levee, where he was presented to the Prince Consort by the Earl of Carlisle. From a long account of the ceremony given in a letter to his sister Maria we make the following extract :—

'Finding, after my invitation to the Prince's Council at Buckingham Palace, that I could no longer postpone paying my humble duty in form, I sent for a Court tailor, and Carry and I devised a very handsome and elegant attire, I think quite as good as any Court dress I saw. A rich sort of dahlia-brown cloth, with bright steel buttons, buckles, sword, &c., and a white satin waistcoat with rich flowers embroidered. Lace cravat full and long, and the same for the cuffs. Cut-steel loop in the cocked-hat. All *very fine*,' as Pepys would say, 'and gave great satisfaction to Carry and Catherine when finally fitted on this morning.'

Besides attending the Committee meetings of the Great Exhibition, he sat on the Smithfield Commission on the Meat Supply of London at frequent intervals. An entry in the diary (February 19), states that a City deputation attended the meeting on that day 'with a ridiculous plan of patching up the market, instead of doing away with it, and also of adding slaughter-houses. The minds of those whose firmness was of such

vital importance were visibly staggered by this plausible attempt to make a show of doing something and of making improvements, when the only right course is to improve the whole thing away. R. sat there boiling with indignation, till his turn came to give his opinion, and then he gave forth his protest against this new proposal in unmistakable language. This set the Commissioners wavering back again. He left them undecided.'

'*March* 5.—This time R. returned from the Smithfield Commission with the hope that things were going right at last. It is evident that his last speech has produced a stronger reaction than he expected. It seems an obvious piece of stupidity to meet a reform by a proposal to perpetuate and increase the nuisance at an enormous outlay of money.'

Owen's course of Hunterian Lectures this year was 'On the Generation and Development of Vertebrate Animals, with Prefatory Remarks on Vertebræ.' He notes in his diary that Hallam was a constant attendant at these lectures, and he also adds: 'I could give the Bishop of Oxford a certificate for most regular attendance.'

Owen's recreations during this course of lectures were visits to the theatre and the Zoological Gardens. He went twice to see Parodi as Medea, and notes a piece of by-play which was not much to that lady's credit. 'In the bridal

scene, I just happened to see Parodi, before throwing down the altar, give one of the unfortunate chorus-girls a sly kick and a vicious pinch. It seems the poor "chorus" was in her way. Parodi and Sims Reeves played together. The latter's fine voice was overstrained to make it go with hers.'

In March the Zoological Society had a young hippopotamus 'on sale or return.' 'At the Gardens to-day,' Mrs. Owen writes, 'there was an amusing scene with the young hippopotamus now there on approval, price only 350*l.*! It was let out of its house for us to see, and when once out was so much pleased with its liberty and the great tank of water, that it declined to go back. Good-natured Hunt tried to tempt it with all sorts of enticing bits, but we left him still unsuccessful. The creature was just like a spoilt child, and showed a spirit of obstinacy very pig-like'

'*April* 12.—R. to take the chair at the Royal Society, and underwent the penance (to him) of "rain admeasurements falling in India." As soon as that was over he hurried off to Mr. Mitchell, who wanted his opinion with regard to a rhinoceros which is also for sale. Demurs of the Council because of the expense of the hippopotamus.'

This hippopotamus was ultimately purchased by the Zoological Society, and proved a great attraction, as may be seen from the following entry: 'Went to look at the new hippopotamus.

There was an immense crowd of visitors to the Gardens. R. and I got through the crowd to the giraffe paddock, in the hope of getting some friends into the house, but soon found it out of the question. There was a dense mass of people waiting their turn to get inside the house, and the whole road leading to that part of the Gardens was full of a continuous stream of people. Mr. Mitchell said that there were more than 6,000 last Saturday, and that there were about 10,000 to-day.'

The Hunterian Lectures of the season were finished by May 4. On that day Owen went to the Royal Academy dinner. 'Sir Robert Peel was there, and also Thackeray, who sent to me across the table to take a glass of wine.'

A remarkable collection of antique watches, containing, amongst others, one which the owner stated to have belonged to Milton, was exhibited this year. Owen went to see them, and his wife records that on his way back 'R. said that he felt convinced the watch could never have belonged to Milton, because of the bad Latin of the inscription on its face, which Milton was supposed to have written himself. R. did not tell this to the owner of the watch. It was, in fact, impossible for him to do so, as the worthy gentleman himself was quite unconscious of the mistake.'

Owen's holiday this year was spent chiefly in Edinburgh. He occupied the whole of August

and part of September in taking a thorough rest.

Just before starting for Scotland (July 24), 'the skeleton of the great chimpanzee arrived, sent by Captain Harris. It is the first full-grown skeleton ever brought to England. I am thankful it did arrive before we started, for otherwise R. would have inevitably turned back to open the box.'

After visiting Edinburgh, Lancaster, Derby, and other places, they returned home on September 19. On the following day 'there arrived a precious volume for R.'s inspection—the original MS. of "Waverley," mislaid so long by Sir Walter Scott. There was a letter from Lockhart with it to vouch for its authenticity. R. was luckily able to spend some time over it before it had to be sent to the Advocates' Library in Edinburgh.'

On September 28 an amusing caricature appeared in 'Punch'—a night at the Royal Institution, Owen lecturing. 'The diagrams very well done,' he remarks, 'and the picture is really very clever.'

This month a new polar bear was added to the Zoological Gardens. 'R. went at 2 o'clock to the Gardens, just in time to see the new polar bear turned out of his barrel (he was brought over in a barrel and had been cooped up for weeks) into the residence of the female polar bear. She

greeted the new arrival with loud growls, and seemed shocked at his being turned into her grounds so unceremoniously. She did not hold her paw before her face, it is true, but she clawed a good mass of fur out of his side and then retreated to her corner in the house, making short runs at him occasionally. The newly arrived bear was so glad to be able to stretch his legs, after having been cramped up so long, that he cared little for these exhibitions of feminine delicacy, but lost no time in plunging into the pond, which operation he repeated again and again.' A later visit to the bears is thus noted: 'We found the happy couple in a rather unpleasant domestic state. The lady backed into a corner, with her nose lowered on to her paws, growling very spitefully and looking daggers or rather "saws" at her mate. He was sitting within a foot or two of her, with a most gentlemanly, patient air, almost amiable. He is a fine animal, of a yellowish colour. She is quite white.'

'*October* 24.—Note from Mr. Gould to ask us to step round and see the skin of a notornis which has been sent him. R. dined with Mr. Lovell Reeve, and came home much pleased with his entertainment. Cruikshank was there, and sang "Lord Bateman" whom he illustrated so cleverly in the "Ballad."'

'*November* 15.—R. started off about nine to

take Mr. Pickersgill to the Gardens. This was his first visit there. 'His art,' he said, 'had never given him time before.' This morning Mr. William Cooper performed the operation for cataract on a young grizzly bear. He performed this operation once before on a young bear, who quite recovered. Several zoologists to witness it.'

'*December* 16.—Author of "Orion," Mr. Horne, here. He told me he did not write the "Raven" papers in "Household Words." They are Dickens's own. Mr. H. wrote the "Zoological Meeting." He said Dickens's papers were sometimes mistaken for his, and *vice versâ*.'

'*December* 20.—R. gone to T. Carlyle's, whom we had asked to come to dinner. T. C. had written to say he was too dyspeptic to venture out at present, and begged R. to go over there. They have been corresponding this week.'

At a meeting of the Literary Club this month, Owen met Southey and Smirke, R.A., among others, and gives in a letter to his sisters an account of the conversation, which turned on the circumstances in which men compose and write. 'The Bishop [of Lichfield] said he always found it easiest whilst walking about in the open air, and that he used to do his verses at Eton always in "Poets' Walk," and write them down when he returned. Mr. Walpole said that *that* was the way in which Macaulay composed, and that he had met him after midnight going through Temple Bar;

he (Macaulay) having set off from the West End to walk to the Tower and back, saying he found the air most pure and the interruptions fewest at that time, and that he had composed the whole of his pages on Judge Jeffreys' downfall during a walk of that kind.'

The letter concludes with a reference to the Great Exhibition, and the building, which was fast approaching completion. 'The Crystal Palace is the most wonderful piece of work the world has ever seen erected in so short a space of time. Whatever be the result of the "Exhibition," one thing is certain—the building must impress every foreigner with a strong sense of English inventive power and perseverance.'

In January 1851 Owen had several meetings with Thomas Carlyle, who was anxious to obtain materials for his life of John Sterling. In writing to Owen about this date, Carlyle says:—

'Can you not advise Professor Airy, or some real mathematician and geometer, to undertake that business of Foucault's pendulum, and (throwing Euler and his Algebra overboard) illuminate it for the geometrical mind? It seems to me the prettiest experiment made in this century, though perhaps good for nothing otherwise. I have had a great wrestling with it occasionally in my own poor head (which used to know some mathematics twenty years ago), and a deadly suspicion haunts

me, the fact itself being certain as fate, that nobody has yet in the least explained what the real cause and conditions of it are.'

'*January* 30.—Charles Dickens and Mr. Forster, of the "Examiner," here. Dickens brought with him a curious letter, of the authenticity of which there can be no doubt, written by the wretched woman Maria Manning at the hour of her execution. It is addressed to a relative of hers, and in the most solemn terms avows her innocence. This relative received it with the notice that Maria Manning had undergone her sentence of death before it was posted. The person to whom the letter was sent had seen from the papers that Dickens attended the execution, and so concluded that he was impressed with the idea that Manning was not guilty, and sent him her letter as a confirmation, whereas Dickens was merely agitating against executions being made *public*. This letter was the outcome of the woman's prevailing feeling strong in death—to pose, and to show up well.'

Dickens afterwards wrote to Owen about an article which was to appear in 'Household Words' on the subject of public executions.

Later on in this year Owen's opinion was asked in the case of a woman, named Maria Clark, who was under sentence of death for child murder. The then Home Secretary wrote to ask what

Owen thought 'of the state of her brain and mind under the miserable circumstances in which she buried her infant alive.'

The diary has this entry on the subject: 'R. wrote to Sir George Grey stating his opinion that the poor creature was certainly not in her right senses, from pain, and exposure to bad weather for twenty hours, and that she was therefore not to be considered as a wilful criminal. It was a very strong letter. The next day R. went to the Home Office, where he was told that his letter had created a strong feeling in the mind of Sir George Grey, who had come to the office at 11 o'clock at night after receiving the letter, and had routed them up in order to get a reprieve prepared and sent off at once.'

Amongst other evils which Owen was anxious to abolish was the window tax, which had not yet been repealed. It was anticipated that considerable difficulty would be felt in obtaining conclusive evidence that light and air were essential to health, as the following letter from Mr. Edwin Chadwick will show:—

*Edwin Chadwick to R. Owen*

'Dear Owen,—It is expected that there will be a sharp fight to retain the window tax, and I am asked by the Chancellor of the Exchequer for physiological or medical dicta as to the effects of the exclusion of light upon the health of the

population. Our evidence, I find, is really very meagre, either as to the influence of light *per se*, or of light as an agent of ventilation, upon the health or disease of the population. . . . Could you, if you have either observed or thought upon the subject physiologically or medically, give me a few quotable sentences or dicta which I might send to him upon the subject? Very short.

'Yours ever,

'E. CHADWICK.'

Owen in reply sent some remarks, which would now be considered perfectly obvious, as to the necessity of windows for proper ventilation and light. It is astonishing to think that these matters once occasioned so much opposition and debate.

At this time there were several meetings of the Committee for the 'Great Exhibition of the Works of Industry of all Nations,' which was to be opened on May 1, and these, with the Hunterian Lectures, kept Owen fully occupied. On April 27 he was informed of his appointment as 'Chairman of Jury IV.' of the Exhibition. On May 1 the opening day is thus described in the diary: 'We got up at half-past five, having ordered a coach at a quarter to seven, which was half an hour late. We drove to the upper end of Piccadilly, where we formed in line with an enormous string of carriages. Many carriages dashed past our

patient line, to be turned back and take their places behind. At last we reached the crowded doors. R., as a juror, took his sister with him in search of the jurors' gallery, for which he had a pass—for one lady. Catherine [another sister] and I hurried past long lines of seats all full, and succeeded in getting an excellent place in the central part—front seats. Impossible to give anything like a clear or regular description of the day. The Sappers and Miners took their posts at intervals along the line. After some distant shouts the trumpets proclaimed the arrival of the Queen and Prince Albert. Never was a sovereign or royal pair more heartily welcomed. The Queen led the Prince of Wales with her right hand, and her left hand was linked in Prince Albert's arm, who was leading the Princess Royal. Then followed a procession of ladies, and I caught a glimpse of beautiful dresses and diamonds and—*red noses*, for the day, though fine, was cold. Then two old officers holding on by each other, one lame, the other infirm—Wellington and Anglesey. The Duke was 82 to-day.'

The work devolving upon the jurors proved to be much more heavy and intricate than had been anticipated, and entailed considerable correspondence on individual jurors.

A letter is preserved, addressed to Owen, stating that Messrs. So-and-so have 'had the meanness to put *their* cards on *our* articles,' and would

Professor Owen have the goodness to 'see about it at once.' But there are also many letters from foreigners, which are models of politeness and diction, especially when their goods received an award.

The President of the French Republic having invited the jurors of the Great Exhibition to Paris, Owen started the last day of July, along with Dr. Lyon Playfair, Joseph Paxton, Lord Wharncliffe, the Lord Mayor of London, and others. Owen wrote some amusing letters during his stay at Paris. At Boulogne the party was received by the Prefect and a band, which played 'God save the Queen.' At the railway station a cold collation had been provided and speeches were made, and champagne revived the flagging energies of those who felt indisposed after the sea voyage. When the train-bell rang it was discovered that the doors of the room in which they had been lunching were locked, and there were no officials at hand to open them. Some of the more daring escaped by the window until a young soldier came and guarded that exit with fixed bayonet. The doors, however, were soon opened, the confusion having occurred simply from a regard for the safety of the English 'Lor' Maire,' and the travellers steamed off to Amiens. A similar reception awaited the representatives there, and they were formed into a procession and marched along to another collation, with more speeches

and merriment. Owen relates that he translated the Lord Mayor's speech, which was delivered in English, to a young French lieutenant, who retailed it to his friends, and they to the people, 'who repeated the sentences and screamed with delight.' 'To find a worthy old alderman made a demigod for the nonce was very rich; but the furore and crowding to see the plain gray-haired old gentleman has gone on increasing, and, say what they will of our crowding to see our Queen, it is nothing to compare with the clustering of all Paris about the Lord Mayor as he walked from fountain to fountain through Versailles yesterday; Hussars and Dragoons dismounted, with all their French official energy, hardly able to keep away from the honest man we once so dreadfully bullied about Smithfield at our "Commission."'

On reaching Paris, the luggage was found to have been left behind; it gradually arrived in course of the next two days, but one member could not attend the Prefect of the Seine's banquet in consequence, and Lord Ebrington had to buy a new suit of clothes in order to be present.

Owen stayed at the Hôtel Brighton, and by some means or other his ticket for the *fête* at St. Cloud given by the President of the Republic to the Commissioners did not arrive, and he was refused admittance. So he and C. T. Newton, who was in the same predicament, climbed up a

wall, and, resting under the shade of a tree, watched the privileged crowd from a distance, and returning to Paris solaced themselves with a dinner at the 'Palais National' and 'Le Prophète' at the Opera, and before going to bed relieved both their minds by inditing somewhat strong letters about their tickets to the Prefect.

Next morning Owen went, with some of the other jurymen, to a charcoal manufactory to inspect the furnaces, and gave the men a sovereign to drink the success of their master, who had won a medal at the Exhibition. Returning to Paris, he went to the Jardin des Plantes, 'and gave a long lecture to a large party, all full of indignation at their treatment at St. Cloud.' This indignation, Owen tells us, arose in the following manner: '*Déjeuner* was served in the Orangerie. The moment the doors were opened the military rushed in and occupied all the seats, drank all the champagne and ate all the fowls, and left the ladies dying with thirst and hunger outside.'

On another day he saw a review in the Champ de Mars, for which he was accommodated with a place in the President's 'tribune,' and about this review he sent a twelve-page letter to his son.

As chairman of the jury on 'The Raw Materials and Produce of the Animal Kingdom,' he ultimately published an elaborate report of their awards, and, after his work as juror was completed, delivered an address, at the request of Prince

Albert, at the Royal Society of Arts, on 'Raw Animal Products and their Uses in Manufacture.' This lecture was published by the Society in their volume of lectures on the various classes of exhibits.

Mr. Scott Russell, after the address, made a speech, in which he mentioned all that Owen had done towards the perfection of the collection of raw materials in the Great Exhibition, especially how he arranged and compiled the lists and had them circulated in foreign countries.

In July, at the meeting of the British Association at Ipswich, Owen delivered an address in the Corn Market on 'The Distinction between Plants and Animals.' This lecture was of a popular character, and soon after its delivery Sir Charles Lyell wrote the following letter to Owen, dated from Werstead Vicarage :—

*Sir C. Lyell to R. Owen*

'My host, the Rev. Barham Zincke, is in such a state of enthusiasm about your lecture, which he says he would not have missed for 100*l.*, that I must tell you before leaving for town that it struck me as the most successful effort I have yet heard you make in popularising a very abstruse subject, and so constantly keeping the grand general views in sight that none of the details were tedious to anyone. I have sometimes ascertained that at the Royal Institution you have

gone into details of which the many could not sufficiently see the bearing, and at other times you have been too technical. Everyone last night felt that such was not the case, and when I remarked to Colonel Reid that no one of the ladies could ever have been even alarmed when you were propounding so many novel theories of reproduction, he said: "The delicacy with which he treated those subjects was as remarkable as any other excellence in the whole discourse." I was afraid, as your voice was just at the proper pitch for me who sat near, that the distant auditors must have lost some, but Dr. Roget, who was much farther off, told me that you were "distinct and space-penetrating;" and Sir C. Fellowes said he watched the remoter parts of the room and observed that they were never talking—a clear proof that they heard.

'Lady Cullum brought me home last night, and when she was expressing her delight at the lecture I told her how glad I was I had not dined at Shrublands, and that I had fairly said to Sir W. Middleton that I could not give up Owen's lecture for his dinner, and that Airy had done the same. She observed: "I wish more independence of this kind had been shown by scientific men." What good can you do if our country gentlemen here can derange all the week your most important proceedings. . . . ?'

At Lockhart's request Owen wrote the review

of some of Lyell's works and of his 'Anniversary Address' in the 'Quarterly Review.'

*J. S. Lockhart to R. Owen*

July 23, 1851.

'Dear Owen,—Many thanks for your frank, manly sentences, on which I have acted. This being my last day here for a time, I have written about twenty-five epistles, all in various ways evading the plain sense of "Sir, you are an ass," but all reaching the same practical object—viz. To your thistles!

'As I shall be on the Continent for a few weeks, please send your paper to Murray, who will take care that all attention is paid to it. Or, if you please, send MS. at once to Clowes with the annexed note. I shall be greatly bothered if I don't find all articles ship-shape on my return. That will not be later than the last of August, and the number must be published by the 1st October. *Verb. sap.!*

'Ever yours,

'J. S. LOCKHART.'

Lyell was evidently pleased with Owen's review and estimate of his works, as the following letter will show, although Owen differed from him in some minor matters:—

'I have just read in the new number of the "Quarterly Review" your article on my Anniver-

sary Address, for I presume you will allow me to infer from internal evidence that it is yours, and I thank you sincerely for the very handsome and cordial manner in which you have spoken of my two works, the "Principles" and "Elementary" (or Manual), and the able analysis which you have given of their contents.

'Such praise will tell the more in their favour when seen to come from a critic, who is clearly no flatterer of the writer, but one who is as competent as he is determined to exercise an independent judgment on his writings and opinions. . . .' [Lyell then devotes the remaining nine quarto pages of this letter to a defence of his views, and concludes:] 'I shall only add that I rejoice to see this subject freely discussed, and forty pages of the "Quarterly" filled with original and most valuable lessons in palæontology. By your liberal praise of my two treatises you will hasten the time when I shall be called upon to reprint them. When I do so I shall try and weigh your arguments impartially and dispassionately.'

In the November of this year Owen wrote another article for the same Review, containing a list of his chief books and papers, and a short summary of the more important. 'It had been proposed,' Owen writes, 'for Broderip to do it, but I found it would be easier and perhaps clearer if I did it myself. The list astonishes me! I wonder how Lockhart will manage, for it is already con-

densed to the utmost, and it looks enough for two long articles in the "Quarterly."'

Lockhart had considerable correspondence with Owen about this time, and in the course of an amusing letter he mentions a curious fact related in the 'Life of Southey:' 'In the last chapters of Southey's Life,' writes Lockhart, 'his son says that after his father's mind failed, his hair, previously almost snow-white, thickened, curled, and became perceptibly darker. Now, tell me if you recollect any other instance of this counterpart to the not uncommon bleaching of the hair under mental distress. For, if the rule be a sound one, a little real affliction or idiotism might be suggested to widows of Mayfair in lieu of the Chinese infallible hair-dye warranted of no purple tinge.'

There was some question this year of Owen succeeding to the post of Keeper of the Mineralogical Department of the British Museum, rendered vacant by the sudden death of Charles König.

On September 1, 1851, Owen writes: 'Mr. Dinkel has just called, and tells me that poor Mr. König fell as he was ascending his own doorstep and was found dead on Friday evening. He was a kind and honest-hearted man.' The post of Keeper of the Mineralogical Department of the British Museum at that time included geology, and the extract which follows from a letter sent

to Owen by Baron Pollock is of interest in this connection: 'I spoke to Sir John Herschel, whose reply you ought to know, as the index of the opinion of the scientific world. He said: '*Owen's claims sweep everybody else out of the field.*'

Lord Enniskillen also writes on the same subject:—

Florence Court: September 15, 1851.

'My dear Owen,—What is this about König? Is he dead or pensioned off, or what? Phil [Sir P. Egerton] mentions in a letter from the North that he hoped you would be appointed to König's vacancy. I have heard nothing of this: pray tell me what has happened.

'I am just going into Enniskillen to sit all day on the bench to judge the folk, so can say no more. . . .

'Your sincere friend,

'ENNISKILLEN.'

As, however, the salary was reduced, and the position offered was not such as Professor Owen could reasonably accept, he declined to compete against Mr. G. R. Waterhouse, who succeeded Mr. König.

The Royal Society awarded the Copley Medal to Owen this year. Writing to his sister, he makes the following remarks about it: 'I have received the Copley Medal, which is the highest honour in that way the Society has to bestow.

The Copley is an old medal, almost coeval with the Society itself, and is voted annually. It does not always fall to the lot of an Englishman. Leverrier, *e.g.*, had it for his new planet. I was disqualified in a previous year, according to old Dr. Copley's bequest, as I happened to be on the Council. At last I have got it, and so now have two additions to my collections of medals, the second being the very beautiful bronze one struck for the Jurors of the Great Exhibition'

The most important paper which Owen published in 1851 was that 'On the Skull of an Adult Male Gorilla,'[1] and there appeared also Part IV. of his 'History of British Fossil Reptiles,' 4to.

In this year also the King of Prussia created him a Chevalier of the 'Ordre Royal pour le Mérite.'

The following is the letter which he received from Baron Humboldt announcing the fact:—

A Monsieur
Monsieur Richard Owen, Esq. [*sic*]
London.
College of Surgeons,
Lincoln's Inn Fields.

'Monsieur et très illustre Confrère,—Le Roi vient de vous nommer Chevalier de son Ordre Royal pour le Mérite dans les Sciences et les Arts. La publication de votre nomination, Monsieur, ne peut

[1] *Trans. Zool. Soc.* vol. iv.

avoir lieu que le 24 Janvier, 1852, jour de naissance de Frédéric le Grand. Je suis heureux de vous annoncer, comme chevalier de l'ordre, ce qui a été depuis si longtemps l'objet de mes désirs. Il me tardait de pouvoir inscrire le nom du plus grand anatomiste du siècle sur nos registres. Que d'admirables travaux en zoologie, en anatomie comparée, en géologie de formations ont illustré votre nom! Vous savez que l'ordre ne compte que trente membres étrangers sur toute l'Europe; c'est plutôt une académie qu'un ordre . . . Vous succédez à M. Oerstedt. Daignez excuser la grande hâte de ces lignes, tracées par la main d'un homme *antédiluvien*, et agréez l'hommage de ma haute et respectueuse considération.

'Votre très humble et très obéissant serviteur,

'LE B^N^ DE HUMBOLDT.

'A Berlin, ce 20 Décembre, 1851.'

In his reply to this letter Owen neatly turns Humboldt's description of himself as 'antediluvian' into a compliment. Speaking of Humboldt's work, he says: 'As it was thought that in regard to fossil remains there were "giants in those days," I am now quite *sure that there are in these.*'

In a letter to his sister dated December 24, 1851, Owen refers to this new decoration and announces Her Majesty's gift to him of the royal house at Kew. 'You have heard,' he writes, 'of my Copley Medal, which I look upon as one of

the brightest spots in this wonderful year. This morning I received a letter from Baron Humboldt informing me that the King of Prussia had made me "Knight of the Order of Merit" in the place of the famous Danish philosopher Oerstedt. . . . Sister Catherine will look at all this *lecturing*, and *medal-getting*, and *foreign orders of knighthood* from the utilitarian point of view, and, I fear, will not fully sympathise with my feelings in giving knowledge and receiving honours; but now comes the "solid pudding." I quote the letter addressed to me, with *C. B. Phipps* in the corner, and the Queen's arms in black wax:—

"Osborne: December 13, 1851.

'"My dear Sir,—I have been commanded by the Queen to inform you that, a house upon Kew Green having become vacant by the death of the late King of Hanover, Her Majesty is happy in being able to offer this house as a residence for you.

'"The Queen commands me to say that she thinks that there is no method in which she can better give a tribute of her respect and regard for science than by thus meeting what she believes to be the almost necessary convenience of one of its chief ornaments and most distinguished members.

'"The house will require some alterations, and a part which is unfit for repair will have to be pulled down, but it will still form a commodious residence,

and I should think, from its proximity to London, would be most convenient for you.

'"Sincerely yours,

'"C. B. PHIPPS.

"Professor Owen."

'. . . . This decided me to push the British Museum question no further; for I must then have lived in town, and had a deal of bothering work, not worth 50*l.* a year more than I now get.'

On the same day he writes to his sister Maria: 'I little thought when I read of the demise of the old King of Hanover that I should become heir to one of His Majesty's houses at Kew; but so our own dear Majesty has graciously willed. . . For our little family, and my quiet way of life, not many rooms are wanted to add to the happiness of breathing and sleeping in fresh air, with access to one of the finest gardens of the world—as good as my own—for life. The Council are now debating upon my request to retain my present sitting and sleeping rooms as a place of business, and for sleeping now and then in town. . . .'

On December 23 there is the following entry in the diary: 'To Sir Robert Inglis's. As soon as we entered Sir R. attacked us about our "palatial residence," but congratulated us very kindly. The news is evidently spreading.'

In sending a copy of the 'Times' to his sister

Catherine, Owen mentions that he attended a Levee on February 25, 1852, and 'went through the crush with the Duke of Northumberland. He talked a good deal about the Kew house, and I think will prove a very kind neighbour. . . . In the evening we went to one of Ella's concerts, and we brought home Prince Albert's Librarian (Dr. Becker) to supper. He told Caroline the Queen and Prince Albert had more than once talked about the Kew house, and hoped it would suit me.'

Professor Owen would often relate how upon one occasion he went down to Kew to look at the new residence, and when he got to the front door and intended going in to make arrangements about the furnishing, a Scotch 'body,' the caretaker, came forward and told him he could not come in, and that he must put off the furnishing arrangements for a while. It appeared that some little difficulty had arisen with the then King of Hanover about the right of possession of the premises, which right it was in time proved that Her Majesty the Queen did possess. But in the meantime Jesse the naturalist, who resided in the neighbourhood, told Owen that the house in Richmond Park (Sheen Lodge) was vacant. After having seen it, Owen immediately went off to Osborne, where the Royal Family were. When he arrived there he found Prince Albert planning out the grounds so as best to instruct

his children in botany, and he asked Owen's advice as to the best method of so doing.

After giving his opinion, Owen broached the subject of the house at Kew, saying how much he would prefer the smaller house in Richmond Park. The Prince said that he had seen the house, but that it was merely a cottage, and that there was no doubt whatever about the right of possession of the Kew house—it was only the matter of waiting a short time. Owen represented to His Royal Highness how much more suitable the cottage would be for his small family, and Prince Albert said that of course, if he really preferred it, he had no doubt it could be arranged, as the Queen's wish had merely been to do what might prove most acceptable. The matter was brought before Her Majesty, who was pleased to consent, and Owen shortly afterwards received the following letter from Sir C. B. Phipps:—

'I have very great pleasure in informing you that Her Majesty has been pleased to grant to you the house in Richmond Park, which you so much wished for. A communication to this effect has been made by the Prince to Lord John Manners. Allow me heartily to congratulate you, and to wish you every enjoyment in your new abode.'

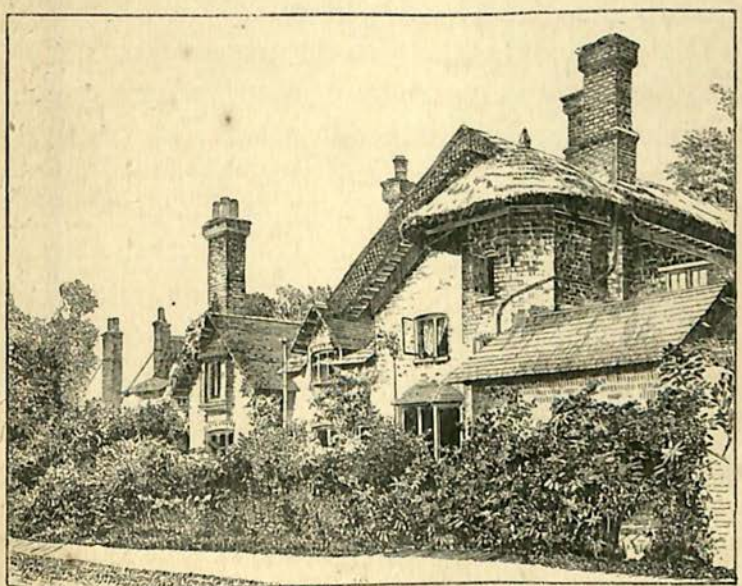
# CHAPTER XII

1852–54

Delight in Country Life—Hunterian Lectures, 1852—Landseer, Mulready, Fanny Kemble, Alfred Tennyson, Charles Dickens —Love of Fishing—Dinner in the Iguanodon, 1853—Literary and Scientific Work, 1854.

By the end of May, 1852 Owen had settled down in the house in Richmond Park, and the delight with which he always contemplated his surroundings there had already been felt by him. Writing to his sister Kate on the 20th of that month, he says: 'The van-loads of heavy goods travelled safely (and in fine weather, which is a great matter) to the cottage on Saturday, where we all slept, and Will and I made our first appearance at Mortlake Church on Sunday. . . . We felt like "jolly squatters" yesterday, but shall be shaken into some shape by the end of a week. Poor Carry compared herself to an overboiled chicken when she woke after the fatigues of the first day's move. I was awoke at three o'clock on Sunday morning by a concert of a very unusual kind to my ears, and, tempted by the unwonted

strains, I stole down into the garden. Day was grayly dawning in the north-east, and some light clouds floating across a pearly sky. The nightingales were sending forth interrupted capricious carols from every bush; with a higher treble for some unknown warblers, and a lower one for



SHEEN LODGE, RICHMOND PARK
Back view, as seen from Professor Owen's garden

thrushes and blackbirds. The distant curlew kept up a running tenor accompaniment, and the more distant rookery gave out a steady bass; with the occasional addition of the wood-pigeon's plaintive coo-oo. Then came the echo of the cheery crow of a distant cock, the lowing of the steer, and the drowsy hum of the humble-bee. The air was fra-

grant with newly opening azaleas and whitethorn, and I was tempted to the brink of the little lake by the strange gambols and gyrations of the great black-backed carp. At half-past four I returned again to bed and slept till half-past nine, in comfortable instinctive unconsciousness that the whole was a reality and no early morning dream!'

This delight at living in the country was a life-long pleasure to Owen; he is always referring to it in his letters, and in his later days, when his strength was declining and sleep was uncertain, he caused his bed to be raised to an unusual height, that he might, 'as he lay in bed, look out at the Park, and at the deer and the birds.'

Before leaving his rooms at the College of Surgeons, and entering the new house, Owen gave his course of Hunterian Lectures, which in this year (1852) was on the 'Anatomy of Invertebrates.' In 1843 his Hunterian Lectures had been on the same subject, but this course was not a mere repetition of the former; nor was this volume merely a reprint of the other, for, as he states in the preface to the volume of his later Lectures, 'the difference between them is in some measure indicative of the progress of the anatomy and physiology of the invertebrate animals during the ten years which intervened between my first and last course of lectures on that subject.'

'In this year his 'Physiological Catalogue of the Hunterian Collections' reached its second

edition; and also Part V. of his 'History of British Fossil Reptiles' made its appearance.

Before leaving the College of Surgeons, Owen had two visitors of interest, both of whom are described in Mrs. Owen's diary:—

'*March.*—Late in the evening R. brought in Mr. Mulready, the artist, and Charles Landseer. R. and Landseer played chess till nearly two o'clock, Mr. Mulready keeping up a long conversation with Mr. Broderip (who dropped in) about old theatrical days. Mulready is not at all the sort of man in appearance one would have expected from his handiwork, being an open, amiable, fresh-looking man of about sixty, large head and face and portly figure. I took him on entering for Chevalier Bunsen, and told him so. The party was so friendly and seemed so loath to separate that I left them to themselves at 2 A.M.'

'*April.*—Fanny Kemble, the actress, came by agreement to go round the museum with R. and several friends of hers. I had no idea until to-day that she was so badly pitted with small-pox. She looks strong and energetic, and her short curling upper lip, curved nostril, with the straight dark brows, give a great look of determination to her face, which is not belied by her voice and manner. Fanny, I could see, was very naturally under the impression that she came more to be looked at than to look; but she soon saw that there were creatures and things of higher interest than a

clever woman even, and that prevented her from feeling the only object in such a place. After a tour round the museum we went into the dining-room, and, *à propos* of some remark concerning our fine Shakespeare's bust, which was looked at with interest and its history given, R. brought out the Becker-case containing Shakespeare's cast, taken after death. The tears came into Miss Kemble's eyes as she looked at it. There may have been a touch of the actress in the emotion which she displayed, but there was a great deal of the true worshipper of Shakespeare in it too. She was quite convinced that the auburn hairs sticking to the plaster cast once adorned Shakespeare's face.'

In April 1852 Owen wrote to the 'Times' a very strong letter against the demolition of the Crystal Palace. He writes: 'I feel it my last duty to the Crystal Palace to make this effort to preserve it worthily.'

It is interesting to note that Owen felt some disappointment with regard to the sale of his numerous scientific works. He once expressed that feeling in the presence of the poet Horne, who wrote him the following letter a day or two afterwards :—

*R. H. Horne to R. Owen*

College Road, Haverstock Hill : May 1852.

'My dear Sir,—I cannot tell you all I felt on hearing you make the statement you did the other

night as to the public neglect of your works—you who possess the highest European reputation. Profoundly as I have long felt the sympathy that must exist between Science and Poetry at the present time and in all the future, I was not prepared to hear one in your position display a similarity of treatment to this which now drives me—to Australia.

'I sail on the 30th inst. for Port Phillip.

'The highest private appreciation of my poetry by the noblest intellects of the time would forbid me to despond, even if I did not find self-sustaining energies; but the fact of the public neglect for twenty years drives me to Australia. . . .

'I shall be a miner or a shepherd, as the case may be. I do not go to seek for great wealth, but only an independence, so that I may indulge in the luxury of printing what I can but write. I shall occasionally make an exploring expedition. If I can in any way serve you, pray command me.

'I am, my dear Sir, with kindest regards, and farewell to yourself and Mrs. Owen,

'Yours always,

'R. H. HORNE.'

After the publication of his 'Archetype of the Skeleton,' Owen had a seal engraved with the idea symbolised, and he gives the following account of it to his sister Maria: 'I enclose with pleasure a wax impression of my adopted cognizance. . .

It represents the archetype, or primal pattern—what Plato would have called the "Divine idea" on which the osseous frame of all vertebrate animals—i.e. all animals that have bones—has been constructed. The motto is "The One in the Manifold," expressive of the unity of plan which may be traced through all the modifications of the pattern, by which it is adapted to the varied habits and modes of life of fishes, reptiles, birds, beasts, and human kind. Many have been the attempts to discover the vertebrate archetype, and it seems now generally felt that it has been found. . . .

'You will be glad to hear that H.R.H. [Duchess of Gloucester[1]] has graciously allotted me a cow's grass in the Park, which will reduce the expense of our luxurious zoological addition[2] to zero nearly; and already the economy of the cow has begun to show itself, for we have been eating our own butter for a fortnight, and my bread and milk is a new dainty to what it was, and we all enjoy our glass of milk at night instead of tea.'

One of the early visitors to Owen in his new abode was Alfred Tennyson. His visit is thus related in the diary :—

'*August* 6.—To-day we had a visit from Alfred Tennyson. His wife sat in the carriage, being in a delicate state of health. Miss Tennyson came in with her brother, who struck me as being a

[1] Then Ranger of the Park.

[2] The cow was a present from Sir Richard Vyvyan.

care-marked, dark-eyed, rather bilious-looking young man, with spectacles; middle height, and rather thin.'

This year Owen attended, as he usually did, the meeting of the British Association, which was held in Belfast. Previous to the meeting, in the middle of August, he was the guest of Lord Enniskillen. He returned home, as he writes to his sister, 'by way of Holyhead, and landed at Euston Station at 5 A.M. Went by the first train to Mortlake and then "Home, sweet Home," where I arrived this morning (Friday, September 17), to breakfast. I found on looking at my thermometer on my arrival that it had fallen here last night to freezing point. Nevertheless, all looks beautifully well in the garden. The Gleditschia has begun to add a slight yellow to its charms. The Althaeas are in magnificent bloom—five of them. One of a rich rosy hue has the buds particularly beautiful. The flower-beds on the lawn are as brilliant as ever. Honeysuckles and verbenas in full blow.'

In the autumn of this year Owen began a series of zoological articles for Charles Dickens's magazine 'Household Words.' Forster made the suggestion in the first instance, and Dickens wrote Owen the following letter on the subject:—

Oct. 19, 1852.

'My dear Owen,—I am just home again for the winter, and saw Forster last night. He per-

fectly overwhelmed me with delight by telling me you had intimated to him that you might sometimes find leisure to write some familiar papers on Natural History, yourself, for this journal [" Household Words "].

'It would be in vain for me to attempt to tell you with what pride and pleasure I should receive such assistance, or what high store I should set by it. If you will give me such gratification and render the work such a service, you can't (I must honestly say) enhance the regard and respect in which I hold you already, but you can and will afford me inexpressible satisfaction.

'Believe me ever,

'Very faithfully yours,

'CHARLES DICKENS.'

On the 28th of this month Dickens came with his wife and sister-in-law to Sheen Lodge. An account of this visit is given in the diary :—

'*October* 28.—Mr. Forster travelled down from town with R., and at about half-past five Charles Dickens with his wife and her sister (Miss Hogarth) came. Dickens was very cheerful in spite of a bad cold, and I believe enjoyed himself exceedingly. He was much struck with the picturesque appearance of the cottage, and admired some of our old furniture. After dinner we had some music. Played Corelli with R. C. D. said the Corelli carried him back to his youthful days,

when he often used to hear that kind of music. Dickens is a handsome man, but much more—there is real goodness and genius in every mark in his face, and the lines in it are very strongly marked. We all took a stroll round the garden by moonlight, before the party left.'

On October 30, 1852, Owen writes to his sister Catherine: 'I enclose an autograph of Charles Dickens. Keep the cover for your scrap-book, but return me the note. It relates to a little paper I wrote for his "Household Words," on Poison Snakes, *à propos* of an accident at the Zoological Gardens. A keeper in the snake-room had been drinking farewell to a friend who was going to Australia, and early in the morning entered the snake-room with a few companions. Being a trifle the worse for his potations, he began to act as a snake-charmer, by way of sport—swinging poisonous snakes over his head and so forth. A cobra, highly incensed at this treatment, bit him on the nose. The man was taken immediately to the London Hospital, but died within the hour.

'Dickens brought his wife and wife's sister here last Thursday, and we had Mr. Forster (editor of "Examiner") and Mr. Kenyon (a poet), both old friends of his, to meet him. Dickens was very happy and in great force. . . . The diversity of trees and shrubs in our grounds, all decaying after their own fashion, produces a rich contrast and

harmony of autumnal tints, and I think the garden never was more lovely. . . . We were able to offer our guests a dish of Cornish cream of home manufacture with their apple tart, and Dickens enjoyed it like a schoolboy. . . . We discussed some "Household Words" articles which I am to try and find time to write for him.'

Charles Dickens soon afterwards wrote the following letter to Owen reminding him of this discussion :—

Tavistock House : Saturday, November 20, 1852.

'My dear Owen,—What do you think as a general subject for a series of papers of some articles describing the peculiarities and points of interest of many of the animals in the Zoological Gardens under some such title as "Private Lives of Public Friends?" *I* think they would be very good in such hands as yours.

'Faithfully yours ever,

'CHARLES DICKENS.'

In November 1852 Owen attended the funeral of the Duke of Wellington, along with Dean Conybeare, Dr. Bliss, Dr. Ogle, and other Oxford friends, of which ceremony he sends an account to his sister Catherine on the 20th. In this letter he says he walked along the Strand 'very leisurely, looking at the sloping pile of human faces, from the barriers on each side to the

house-tops—a very singular part of the scene.' The day after he was dining with Hay Cameron, a fellow-commissioner with Macaulay in the East Indies, and a great-grandson of the head of the clan that marched with Prince Charlie to Derby in '45. 'By the way,' he says, 'he showed me an original miniature of the "Prince" which the latter gave to his ancestor at their first leave-taking. The poet Henry Taylor (Van Artevelde) and Lord Wrottesley were of the party.'

In reference to the death of the Duke of Wellington, Professor Owen wrote on November 13, 1852, to Mr. Thomas Poyser, of Wirksworth :—

'I have been particularly favoured in respect of the remarkable solemnities in honour of the memory of the great Duke. The present amiable inheritor of the title called on me last Wednesday to request that I would call on him to see the cast that had been taken after the Duke's demise, and give some advice to a sculptor who is restoring the features in a bust, intending to show the noble countenance as in the last years of the Duke's life. It is a most extraordinary cast. It appears that the Duke had lost all his teeth, and the natural prominence of the chin and nose much exaggerates the intermediate space caused by the absorption of the alveoli.[3] He of course wore a complete set

[3] There follows a little sketch of the cast.

of artificial teeth when he spoke or ate. My last impression of the living features is a very pleasing one. I brought it away vividly in my mind from Lord Ellesmere's great ball last July.'

In this year Owen had the offer of the Presidency of the Geological Society, which he declined. Edward Forbes, who accepted the post, wrote him the following letter on the subject, dated Sandown, Isle of Wight, December 16, 1852: 'I thank you heartily for your kind and frank letter. As you know all the particulars respecting the Presidency of the Geological Society matter, I need not repeat them here. I was very much astonished when the President mentioned my name as that of his possible successor. There are many members who have not filled the chair and who have claims before mine, but pre-eminently before them all is yourself. This is the opinion of every member of the society, so far as I am aware, and certainly is that of Mr. Hopkins. I regret that you will not take the post, and doubly regret the only valid reason for your declining—viz. the personal annoyance that it might cause you through the body with which you are officially connected. I feel ashamed of our country when I think of it. . . .'

Amongst Owen's favourite amusements was that of fishing. He was always a keen fisherman, and was constantly to be seen exercising the 'gentle art' from the banks of the lakes or ponds

in Richmond Park. The following story is related of him by Mr. George F. Wilson :—

'Walking with him in Richmond Park, we passed a pond where some men were fishing. One had put down his rod and was on his way to the other side of the pond to put down another. The Professor, as he then was, said to the man : "There are heavy fish here ; you may lose your rod." As we walked on, he said : "I spoke feelingly. Soon after coming to Sheen Lodge, I got up very early one morning to fish, and did exactly what I warned that man against doing with the result that one of my rods was dragged into the pond. I took off some clothes, and went in after it as far as the water and mud would allow ; but the mud was deep, and it would not have done for the Professor to make a specimen of himself in the mud of his pond. After a time an early sweep came by. He was sent for his long-handled broom. After that the gardener and some others came to help ; then a park-keeper rode up and began : 'You rascals, poaching ;' but, on seeing me, held up his hands and exclaimed, 'The Professor!' burst out laughing at the muddy group, and galloped off. At last, I could just reach the big fish, when it made a plunge and broke."'

To his sister Eliza, December 22, 1852, Owen writes thus :—

'"Please, Sir! Mrs. Liddell's compliments, and

she is very much obliged to you ;" and so waked up by Albert the page from my after-dinner nap. The thanks from our neighbours being for three out of half a score *jack*, caught in the great pond this morning by Mr. Gould and me. . . . We had two capital chess battles last night—each winning one [Hon. Adolphus Liddell][4]—and his beautiful wife playing the most charming airs from good old "Don Giovanni." The breach being quite practicable between the two gardens, three minutes' walk in the bright moonlight clears the distance.'

Owen's enthusiasm for the 'Cottage' and its beautiful surroundings knew no bounds. In a letter to his sister Catherine (January 3, 1853), he refers to a 'grand battue' which took place in the park on that day, and says: 'His Royal Highness [the Duke of Cambridge] ordered a couple of hares to be left for us at the close of the day, so what with these and the good Duchess's venison and the carp, I begin to find the advantage of living in a "preserve." I don't know that I ever enjoyed the snug place more than now; but the season has been so extraordinary that it is like a prolonged mild spring, and we have occasionally splendid sunsets. The walks are very enjoyable, wet or fine, the exercise being always good.'

On March 1, 1853, he sends an account of the first 'Club' dinner that season: 'Hallam was in

[4] The garden of whose house could be entered from the garden of Sheen Lodge by a breach in the hedge.

the chair. Duke of Argyll, Bishop of London, Dean Milman, Baron Van de Weyer, Pemberton Legh, Dundas (who used to go Northern Circuit), Dr. Holland. Hallam said that Hall's famous sermon on Princess Charlotte was copied from, or founded on, one of Burnet's on a daughter of Louis XIV. The Duke of Argyll, *à propos* of monomaniacs, related an anecdote of a Highland gentleman he visited, who insisted on walking backwards as he showed him to his sleeping-room; also an anecdote of a worthy Scotch judge, who travelling by rail at the time of the Great Assembly, and finding himself at the place where the train stopped for dinner with a number of Scotch "meenisters," was asked by them to say grace, he being taken for the oldest and most reverend; and thereupon he rose and, beginning a grace in Gaelic, continued it till the bell rang for the continuation of the journey.'

The Hunterian Lectures given this season by Owen were on the 'Anatomy of Fishes.' He notes in his diary that during this course of lectures Hallam was again a constant attendant.

A considerable part of this year was spent by Owen in 'directing and selecting the restorations of the megatherium and other extinct animals in the geological section of the grounds of the Crystal Palace at Sydenham.'

In the address of the Chairman of the Crystal Palace Company to the Queen the following

remarks are made: 'The restoration from a single fossil fragment of complete skeletons of creatures long since extinct, first effected by the genius of Cuvier, has always been considered one of the most striking achievements of modern science. Our British Cuvier, Professor Owen, has lent us his assistance in carrying these scientific triumphs a step further and in bringing them down to popular apprehension. Aided by the indefatigable exertions of the modeller, who with his own hands moulded their forms, the gigantic iguanodon, the ichthyosaurus, and other monsters of the diluvian world will now present themselves to the eye as they once disported themselves and pursued their prey amongst the forests and marshes of the secondary and tertiary periods.' How far the labours of Professor Owen and other learned men in setting forth these extinct creatures in the Crystal Palace grounds have succeeded in educating the mind of British public, may perhaps be considered as doubtful.[5]

[5] The writer lately made a pilgrimage to the Crystal Palace, and succeeded in effecting a surreptitious landing upon the island where the forms of these extinct monsters are displayed. Here he found the specimens in question slightly dilapidated as to tails and other extremities, together with a total absence of anything like explanation, or even names of the creatures. From the remarks of the British holiday-makers he gathered that the popular mind was divided as to whether these images were inferior imitations, on a large scale, of certain animals at the Zoological Gardens — wherein the popular mind had a vague sense of being defrauded—or whether they were not creations

Those who were engaged in setting forth the forms of these extinct creatures celebrated the completion of their labours by dining together in the inside of one of the largest of them—the iguanodon.

A morning paper of the time says in an article headed 'Dinner to Professor Owen in the Iguanodon:' 'Often as we have recorded the proceedings of meetings and banquets convened for the purpose of giving expression of the feelings of respect and esteem for eminent and scientific men, we have never yet been called upon to record a dinner given under such circumstances as that last Saturday to Professor Owen in the model of the iguanodon. . . . There was something so grotesque and monstrous in the illustrations which accompanied the card: "Mr. B. Waterhouse Hawkins requests the honour of ——'s company at dinner in the Iguanodon at 4 P.M.," which excited the curiosity and interest of some of the leading scientific men of the country, and which induced them to be present at so novel a banquet. The number of gentlemen present was twenty-eight, of whom twenty-one were accommodated in the interior of the creature, and seven at a side table on a platform raised to the same level.'

of some eccentric person's imagination. One individual was of opinion that they were surely placed there with the pious purpose of setting clearly before the eyes of the public, as a terrible warning, the fantastic visions sometimes seen by such as are in the habit of indulging too freely in spirituous liquors.

At the end of April Owen received the following letter from Lord Derby, who had just been appointed Chancellor of the University of Oxford, inviting him to attend the ceremony of his installation :—

*Lord Derby to R. Owen*

St. James's Square : April 28, 1853.

'Dear Sir,—I hardly know whether I am sufficiently justified by the extent of our acquaintance in writing to you to say how much it would gratify me if you were disposed to pay me the compliment of attending the ceremony of my installation as Chancellor of the University of Oxford on Tuesday, the 7th of June; and if you would further allow me, in that case, to insert your name in a small list of men distinguished in various capacities, whom, in accordance with the usual custom, I am called on to recommend to Convocation for the honorary degree of D.C.L. Allow me to say that I should look upon your acquiescence not only as a personal compliment, but that I feel the University will do itself honour in conferring such a mark of its respect on one whose scientific claims are so universally known and acknowledged.

'I have the honour to be, dear Sir,

'Yours faithfully,

'DERBY.'

Owen, in acknowledging this letter, informed Lord Derby that he had already received the degree of D.C.L. from Oxford University on June 23, 1852, but that he would gladly attend the ceremony of his installation as Chancellor in June.

A letter which Owen addressed about this time to a wealthy correspondent, whose name need not be given, may be found of interest, as it shows that he had very strong feelings as to the proper use of the tickets of admission given to the Fellows of the Zoological Society :—

'Dear Sir X.,—A Fellow of the Zoological Society is limited to the introduction of two persons on each Sunday. . . . Your request would, if fulfilled, deprive me of the power of granting admission—say, for the three or four following Sundays. Hitherto I have restricted my Sunday tickets for the behoof of our College students and other young medicals having a taste for zoology, and who cannot be expected to subscribe for an ivory ticket. I have also not infrequently letters from journeymen and others of the weekly-wage class, representing their inability to profit by the collection of the Zoological Society on any day but Sunday, and I could show you specimens of these applications that would do honour to any class, save the relation of means to the request. You will see, therefore, that were I to send you a few cards I should deprive myself of the power of supplying

some that more need them, or of accompanying a foreign anatomical friend, on the only day I have at liberty, who might come to London.

'In general, when a town resident's income equals or exceeds my own, I urge him to join with me in helping on the good work of the Zoological Society.'

The following extracts are taken from Mrs. Owen's journal kept in 1853 :—

'*July* 11.—Went with R. to see the Aztecs at Hanover Square Rooms. Two most extraordinary dwarf children from Peru, whose minds seem to go no further than those of ordinary children of two or three years old. These were given out to be about fifteen. I soon attracted the attention of the boy by drawing objects he was likely to know on a piece of paper. He recognised a duck at once, pointing and nodding his head. A cat was not so familiar. They are very strange beings, and their proprietor seems to be making money.'[6]

'*August* 4.—R. and I to Windsor to see the troops reviewed by the Queen in person. Her Majesty rode a black horse and had on a dark blue habit with gold trimming across the breast, like a general officer, and a pretty little hat with a white and red plume. She returned salutes in

[6] Not long after this visit Owen contributed to the *Ethnol. Soc. Journal* 'A Brief Notice of the Aztec Race, followed by a Description of the so-called Aztec Children exhibited in 1853.'

the military fashion. Prince Albert rode on her left side and the Duke of Cambridge on her right. We watched the sham fight and afterwards went to the tent of one of the officers who was a friend of R.'s and had lunch in the mess tent of his regiment. We saw everything—hospital, stables, kitchen, &c. Home at half-past eight.'

Owen spent the September of this year in Paris with his wife, but nothing in this visit calls for remark. Soon after his return to London, in October, he writes to his friend White Cooper :—

'Made my first appearance, after our return from France, here at the old scene of my scientific labours this morning. . . . I shall be here now daily as usual, and might perhaps make a day when we might dine at the Athenæum together and tell our adventures since we last met. I took my seat at the Institute and lectured in French to them on different matters for about an hour. You will see the report in the "Comptes Rendus" I think for September 5 or thereabouts. . . . I expect soon to settle down into the old quiet jog-trot working state.'

'*October* 15.—R. busy dissecting the walrus which lately died at the Gardens. The man who had it to sell did a foolish thing in asking an unreasonable price for it in the first instance—750*l.* The Society allowed the walrus to have a place in the Gardens at the man's own responsibility, but would not listen to such a sum. The

animal died, and the man only gets the price of a skeleton and skin.' [7]

Owen wrote but few papers this year, his most important contribution being a description of the 'Fossil Chelonia of the Wealden,' 4to.

In 1854 a small series of fossils from the Purbeck Beds at Swanage were sent to Professor Owen by Messrs. Wilcox and W. R. Brodie. The majority of the specimens were remains of small saurians, and consisted mainly of lower jaws; but the appearance of some teeth in certain of the small jaws suggested evidence of a mammalian rather than a reptilian origin and excited considerable interest. A paper on the subject was contributed by the Professor to the Geological Society in the same year, and a detailed exploration of the place of deposit was undertaken by Samuel H. Beckles at much cost and considerable personal risk. The result of Mr. Beckles's efforts was made known to the world in collected form by Professor Owen in 1871.

In 1854 appeared Parts V. and VI. of his work 'On Dinornis' ('Zool. Trans.'), also Part VI. of his 'History of British Fossil Reptiles.' Amongst other writings this year his contribution of the article 'Mollusca' to the 'Encyclopædia Britannica' may be mentioned.[8] Besides the usual

[7] A paper descriptive of this walrus was read at the Zoological Society on November 8.

[8] In this he received the assistance of Dr. S. P. Woodward. It was published in 1858.

course of Hunterian Lectures, which were still on the Anatomy of Fishes, Owen gave a lecture on February 10, at the Royal Institution, 'On the Structure and Homologies of Teeth.'

Amongst the correspondence for this year there is a letter from the Duke of Argyll asking Professor Owen whether he considers that dogs are physically unfitted for use as draught animals. The Duke mentions the case of the Esquimaux dog, and says that there will probably be a discussion and division in the House of Lords in a few days on the subject. Professor Owen replied that the general framework and muscular structure of dogs adapted them for draught purposes, and that the larger kinds do the work with goodwill and without distress. But the physical unfitness for habitual draught is seen in examining the foot and by noting the evident soreness of foot in a dog which has run for long on a hard road. He also remarks that the case of the Esquimaux breed does not apply, because they almost invariably run over snow-covered surfaces, and not on hot and hard roads such as exist in this country.

In the summer of 1854 Owen devoted some time to the water supply and sewage arrangements of Lancaster. Whilst in the North of England he attended the Liverpool Meeting of the British Association, giving an address on 'Anthropomorphous Apes' at the 'New Hall' there to an audience of between two and three thousand. His

entrance into his native town (Lancaster) was welcomed by a peal of bells. After the completion of the sanitary arrangements there, Owen wrote a letter to the Editor of the 'Lancaster Guardian,' from which the following passages may be quoted. He says: 'As a member of the Commission for the Health of Towns . . . . I believe myself able to give the town a trustworthy testimony of the character and the value of the works that have been completed and are in progress.' After this he proceeds to contrast the work done with that done in other Lancashire towns, and pays a high tribute to the engineers and contractors employed. His remarks on the policy of permitting the water supply of large towns to fall into the hands of private companies may have an interest for the present day. 'A company,' he says, 'associated for profit to be made by doling out a measured and intermittent supply of a necessary of vital importance to a town, may be content to have works good enough for their day, or perhaps the next generation; carried out, moreover, on principles relating more to the profit of shareholders than the welfare of the parties supplied. We, in London, have more than enough of sore experience of the results of this way of supplying water; according to which experience, water companies are useful as warnings of what to avoid in the plan of construction and mode of supply of water to a town. . . . . My anxiety now is,

that the town should reap the full benefits of the water supply. For that purpose the supply must be directed, by combined sewage works, irrespective of private and public streets, so as to carry off the sewerage from every, even the humblest dwelling.' Owen concludes with a promise of some further remarks on the 'economical and profitable results of the water and sewage works viewed merely as an investment.'

In July, Charles Darwin wrote a letter to Owen on the subject of the Cirripedia.[9] Their place in the system had occasioned considerable doubt and difference of opinion amongst zoologists, but Darwin's researches went far to settle the vexed question of their zoological position, and so the following letter may be found of interest:—

Down, Farnborough, Kent: July 17 [1854].

'Dear Owen,—. . . . I cannot tell you how much gratified I am at what you say about the Cirripedia. I really feel rewarded for more labour than you would readily believe it possible could have been bestowed on the work. I have, however, made a mess of it, for I got so frightened at the thoughts of all the *seaside* species, that I have not illustrated and given in nearly detail enough my anatomical work,

[9] A well-defined natural group of marine invertebrate animals, commonly known as 'barnacles.' They are very widely diffused—in fact, there are scarcely any seas without some of the species, as they frequently fix themselves on to floating bodies.

which is the only part of the work which has really interested me. I find the mere systematic part infinitely tedious. I can, however, honestly state that all I have said on the males of Ibla and Scalpellum is the result of the most careful and repeated observation. If I am ever proved wrong in it, I shall be surprised. But my pen is running away with me; it is your fault, for I have been so much pleased with what you say. Making out the homologies of the shell and external parts of Cirripedes, as I fully believe correctly (and I am glad to say that Dana admits the view), gave me great satisfaction. But I must not bore you with my triumph. I have been very seldom in London for the last year. When I was last there I called at the College to see you, but you were just gone out. Pray believe me, in a great state of triumph, pride, vanity and conceit, &c., &c., &c.,

'Yours sincerely,

'CHARLES DARWIN.'

In December 1854 Owen was offered and declined the chair of Anatomy in the University of Edinburgh, which was rendered vacant by the death of Edward Forbes. Writing to his sister (December 20), he says: 'Poor Edward Forbes! There was never a scientific man whose unexpected death caused a more general or sincere regret. . . . I declined the offer to succeed him, as I was by no means sure that after fulfilling the duties of

a winter course of five lectures a week for six months my strength, any more than my poor friend Forbes's, would carry me through a continuous course during the succeeding summer months.'

In a letter written a few days afterwards he says: 'I met a very interesting party a few days ago at breakfast at Sir Robert Inglis's—the new President of the Royal Society, Lord Wrottesley, Sir J. Herschel, Mr. Robert Brown, Captain Fitzroy, Mr. Charles Darwin (who went round the world with Captain F.), Dean Morier, Professor Acland of Oxford, and Dr. Rae (who discovered the remains of poor Sir John Franklin). We had of course all the particulars of that long and earnestly looked for discovery. . . . Dr. Rae pointed out on a new map of the Arctic Regions exactly the spot where Franklin's party lay; and he assured us that the party to be sent out by the Hudson's Bay Company would arrive there next July or August.'

END OF THE FIRST VOLUME

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